ENGLISH

Z10-3 edition 1
Code: 001.213
001.214

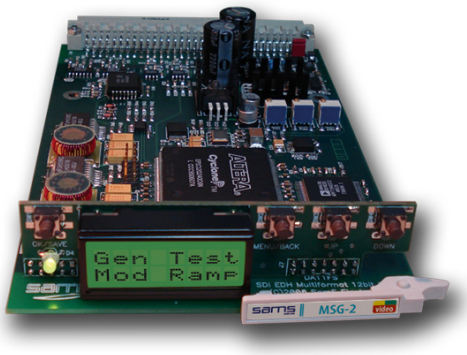
MSG-2a(s)

SDI / AES/EBU / multiformat analog video signal generator
- for SRU rack frame
- standalone

USER MANUAL FOR USE AND MAINTENANCE

Read the instructions before using the device.

Keep this manual for periodic usage.



Sams elektronik d.o.o.
48 Zivka Davidovica st.
11050 Belgrade
Serbia
Tel/Fax: +381 11 3806 253
+381 11 2402 212
sams@sams.rs
www.sams.rs

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Updated: 21. november 2014.

WARRANTY

Dear User,
Thank you very much for purchasing our product.
Your purchase is a wise investment. The equipment you have purchased is manufactured with great care from high-quality parts and materials. It is designed to fully meet the needs according to specifications, if properly installed, used and maintained according to the enclosed instructions.

Any technical failure or deficiency that occurs during the warranty period specified on the invoice of the purchased equipment will be inspected and serviced by Sams elektronik doo or an authorized service center of the manufacturer, with the conditions set out in the warranty statement.

THIS DEVICE IS INTENDED FOR PROFESSIONAL USE.

WARRANTY STATEMENT

1. Product has declared characteristics. Within the warranty period, manufacturer ensures the removal of technical failures, product defects or replacement of products if declared characteristics of the product are changed.
2. If the goods are not delivered as specified with the contract, the consumer has the right to request from the manufacturer / service provider to eliminate the lack of conformity, without charge, repair or replacement, or to request an appropriate price reduction or terminate the contract.
3. Any repair or replacement must be made within a reasonable time without significant inconvenience to the consumer, taking into account the nature and the purpose for which the consumer has purchased the product.
4. The consumer has the right to terminate the contract, if he can realize the right to repair or replacement, or if the manufacturer / servicer has not completed repair or replacement within a reasonable time or if the manufacturer / servicer did not perform repair or replacement without significant inconvenience to the consumer.
5. The consumer may not terminate the contract if the lack of conformity of the product is negligible.
6. The product will function properly when used in accordance with the user manual.
7. Period of servicing the product is 6 years from the launch on the market.

The product purchased outside the territory of Serbia does not fall under the terms of this warranty, only to 1 year factory warranty from date of purchase.

TERMS OF WARRANTY

1. The warranty period begins on the date of sale referred in the invoice.
2. The buyer loses the right to warranty if the defect cause failure from not following the user manual instructions, improper installation, comes to mechanical damage during use, repairs and modifications by unauthorized persons, installation of non-genuine spare parts, and if the buyer does not comply with all warnings listed in the user manual.
3. The warranty is voided if the device is damaged during the disturbances from the environment, natural disasters (floods, hail, etc.), suffered an electric shock or lightning strike.

IMPORTANT NOTES

1. Be sure to thoroughly read the user manual.
   If you have any doubts about the instructions, contact the technical support of the manufacturer.
2. Before contacting for technical help, please make sure that are provided with all necessary conditions for normal operation.
3. If the malfunction or defect in the device does not eliminate within a reasonable time from the date of failure, the warranty period shall be extended for as many days as the unit is in service.
4. For all maintenance interventions shall solely be authorized services listed in this Warranty Certificate.

SAFETY WARNINGS FOR SRU RACK FRAME

IMPORTANT SAFEY

WARNING

TO AVOID RISK OF FIRE OR ELECTRIC SHOCK
DO NOT EXPOSE THE UNIT TO MOISTURE OR RAIN

The symbol "lightning in a triangle" is to alert the user to the presence of high voltage. In poor conditions the user may be exposed to shock.

The symbol "exclamation mark in a triangle" is to alert the user to comply by the terms of use in user's manual, which is supplied with the device.

CLASS I DEVICE
Grounding is connected to the chassis of the device.
The power supply is protected with fuse against overload.

И 005 13

DECLARATION OF CONFORMITY for product:
SRU RACK FRAME WITH POWER SUPPLY (PSU-212) WITH CORRESPONDING MODULES AND BACK CONNECTORS
The product is designed and manufactured according to the following regulations:

- Electromagnetic Compatibility Directive (EMC)
- Low Voltage Directive (ELV)

Documentation confirming statements can be obtained on written request for review.

WARNING

TO AVOID ELECTRIC SHOCK, DO NOT OPEN COVER.
DEVICE MAINTENANCE REQUIRES PROFESSIONAL PERSON AUTHORIZED BY THE MANUFACTURER.

1. Read all safety and operating instructions before using the device.
2. Keep all safety and operating instructions.
3. Follow the instructions from the user manual.
4. Do not upgrade device, except in the case advised by the manufacturer.
5. Do not use the device in the presence of water and / or moisture.
6. Do not pour water or moisten the device with any type of liquid.
7. Openings on device are provided for ventilation.
8. Do not block air flow through the ventilation openings.
9. This product is powered by AC ~ 230V ± 10%, 50Hz.
10. This product is equipped with a three-wire cord with grounding.
11. This device is equipped with a protective fuse in the power outlet. Do not bypass fuse.
12. Do not replace the fuse. Replacement can be made by a person authorized by the manufacturer.
13. Do not bend the power cord so that it can be damaged.
14. Connect connectors as in the enclosed instructions. Deviations from the allowed values predicted for the inputs and outputs of the device can cause severe damage and warranty void.
15. Do not use the device in an environment that contains flammable or explosive materials in any physical state.
16. Turn off the power corde before cleaning. Do not use liquid, aerosol or flammable cleaners. Use only a dry cloth.
17. Servicing is performed by a qualified person. Removing the cover user is exposed to high voltages.
18. Never use the device when the cover is open and the device is powered on.
19. Do not expose to extreme high or low temperatures.
20. Do not expose to sudden temperature changes.
21. Call service in the following cases:
    - The power cord or plug is damaged
    - Liquid or foreign objects is inside the device
    - The machine is exposed to water and moisture
    - The device does not function according to specification
    - The unit has been dropped or damaged
    - The characteristics are significantly changed
22. Use only specified replacement parts.
23. Professional person authorized by the manufacturer must check the device after completion of service.
24. Allow a free rack unit (1RU) above and below the device for ventilation or put rack fan under the device.

Pictures and drawings listed in this user manual are for information purposes only and may differ from the actual device. Design and specifications of the device may change without prior notice.

TECHNICAL SUPPORT AND SERVICE

Sams elektronik has made every effort to ensure that the equipment works in perfect condition. In the event that problems that occur can not be resolved, or if you have any questions regarding this equipment or information about other products produced from Sams elektronik, contact your local sales representative or call Sams elektronik directly through one of the ways listed below:

Sales: +381 11 3806 254
Technical support: +381 11 2402 212
Service: +381 11 4056 051
Email:
Sales - sasa@sams.rs
Technical support and service - sams@sams.rs

Web site: www.sams.rs

Address:
SAMS ELEKTRONIK d.o.o.
48 Zivka Davidovica st
11050 Belgrade
Serbia

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UNPACKING AND INSTALLATION

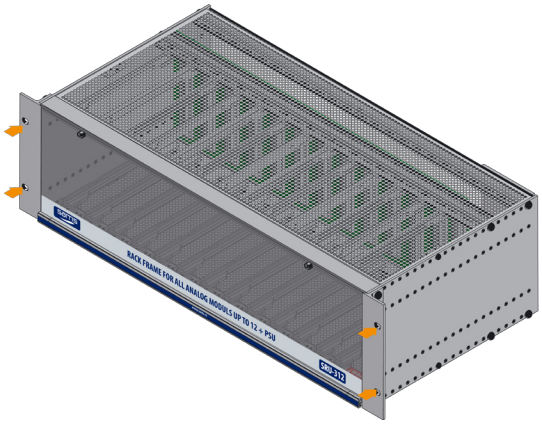
The box contains:

- Module
- Back connector (optional)
- Protective pad for SRU rack frame (optional)
- M2.5x6/7985 screw (optional)
- SRU rack frame (optional)
- Power corde for SRU rack frame (optional)
- User manual (optional)

Before use, check the contents of the box. For any deficiency report to the seller or the manufacturer of the product.
DEVICE IS INSULATED BY PROTECTIVE WRAP AND PACKED IN A CARDBOARD BOX.
DEVICE IS SENSITIVE TO SHAKES AND DROPS. HANDLE WITH CARE DURING TRANSPORT AND ASSEMBLY.
Check if the product is damaged during transport.

PROCEDURES FOR SAFE USE OF THE DEVICE:

1. - If the device is not supplied with SRU rack frame, remove the protective wrap from the device. If the device is supplied with SRU rack frame, remove the protective wrap from the chassis.
   - For devices that are AC 230V / 50Hz powered, the device is supplied with power cord.
   - Use only power corde that comes with the device.
2. SRU rack frame is mounted in a 19" special-purpose rack cabinets designed for this type of device. Screw device with four screws. Screws for fastening are not supplied with the device.
3. The device must be connected to ground. A device that is not connected to the grounding does not function properly according to factory declarations and can cause adverse effects on users and other equipment.
4. Strictly comply to all steps for proper connection of devices in the system.
5. On the SRU rack frame are 3 types of mass (CHASSIS, MAINS and 0V). The factory, all three are connected. According to the user's needs, the masses can be switched over between them.



Places for fastening

MAINTENANCE

The system maintains only person authorized by Sams elektronik doo.
Any voluntarily opening device, upgrading or servicing is strictly prohibited and is subject to warranty void, and the possibility of injury.

REMOVAL AND STORAGE

1. Before dismantling the device, switch off the power, remove the power cord and remove all other connectors.
2. Remove the four screws for fastening.
3. Remove the device from rack cabinet.
4. Wrap the machine in the foil to protect it from dust. Package it in a box.
5. The device must be stored in a room without moisture.

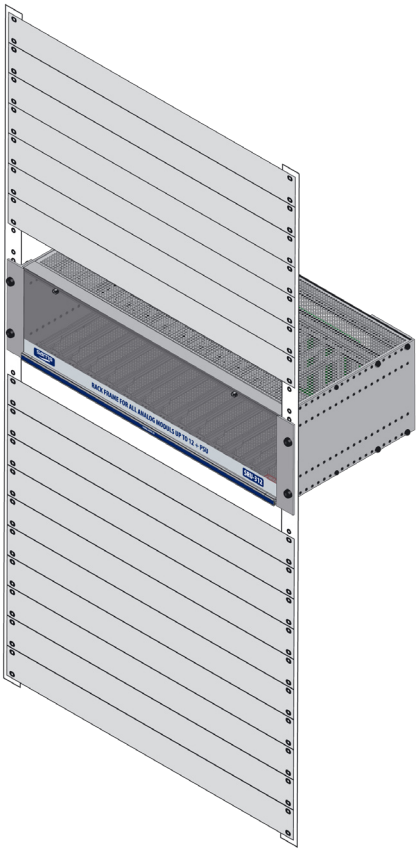
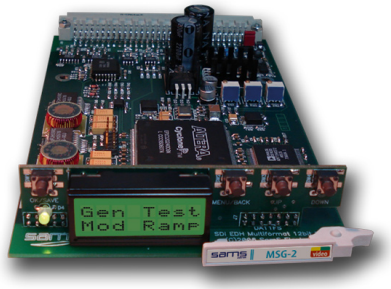


Illustration - mounted device

DESCRIPTION



MSG-2a

SDI / AES/EBU / multiformat analog signal generator

- Broadcast quality (10bit extended)
- Analog component (YCrCb / RGB / YC) and composite CVBS output
- SDI output with embeded audio
- AES/EBU output
- Digital or analog external genlock
- Internal precision master clock 1ppm
- Supperior jitter performance
- 26 different tests
- Auto Cable EQ excedeing 200m (usualy 300m depend on cable quality)
- Pal CVBS color framing and phase adjustment
- Easy setup with local control and LCD display

The MSG-2a is multiformat signal generator. MSG-2 synchronize output test from external digital or analog genlock source. MSG-2 may also be system reference with intermal precision master clock 1ppm. With both, digital and analog - composite and component (Y, Cr, Cb or RGB or YC) outputs available, this module is perfect as master video reference in combined digital and analog facilities. Provided adjustments for analog video are: Horisontal and Vertical Position, SC Phase and Color Framing. Included tests are: bars 75%, bars+red 75%, bars 100%, bars+red 100%, red, green, blue, black, 50% field, 100% field, convergence, pluge, bounce, activeline, 10 steps, 10 mod steps, ramp, mod ramp, 2t 10t bar, pulse bar, sin(x)/x, multiburst 60%, sweep, check field, eq and pll. Audio adjustment are: frequency (0Hz-20Khz), output level for every channel (-63dbFS to 0dbFS) and audio click time for every channel.

TECHNICAL SPECIFICATIONS

Specifications and designs are subject to change without notice

GENERAL INFORMATION

- Code: 001.213
- Weight: 0.4 Kg
- Type: module
- Dimensions: 100 x 160mm
- Required: SRU rack frame, back panel ADCV-8
- Delivery includes: device, user manual

DIGITAL OUTPUT

- Number: 1, BNC female
- Signal type: Serial digital (SMPTE259M)
- Impedance: 75Ω
- Jitter: < 0.2UI (Tipical 0.1UI @ Color Bar, 10Hz filter mode)
- Level: 800mV ± 10%

ANALOG OUTPUT

- Number: 3, (YUV, RGB, YC, CVBS) BNC female
- Impedance: 75Ω

AES/EBU OUTPUT

- Number: 1, BNC female
- Output level: 1V ± 0.1V
- Frequency: Silence to 20KHz (10Hz step)
- Level: -63dbFS to 0dbFS

DIGITAL REFERENCE

- Number: 2, BNC female
- Signal type: Serial digital (SMPTE 259M)
- Impedance: 75Ω
- Input level: 800mV ± 10%

ANALOG REFERENCE

- Analog BB 300 mV: 1, BNC

MASTER OSCILATOR

- Frequency: 27.000000MHz VCTCXO
- Accuracy: ± 1PPM @ 25°C
- Stability versus temperature: ± 1PPM 0°-55°C
- Stability versus time: ± 1PPM / Year max.

OUTPUT PERFORMANCE

- Bit resolution: 10/12bit processing
- Black offset: Self adjusting
- H adjustment range: 0-64µs in 37ns steps
- V adjustment range: 0-625 lines in 1 line step
- SC range: 0-360°

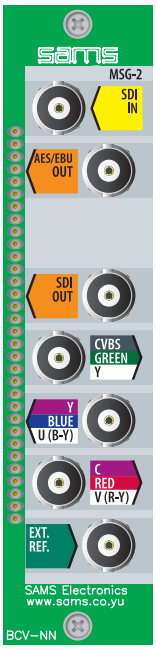
POWER

- Voltage: 2 x 12V AC
- Power: 8W

TEMPERATURE

- Performance: 5-40°C
- Operating: 0-50°C

BACK CONNECTOR ADCV-8



ORDERING INFORMATION

Code	Name	Description
001.213	MSG-2a	SDI / AES / Analog signal generator
001.509	ADCV-8	Back connector
001.605	SRU-306	Rack frame for 6 modules

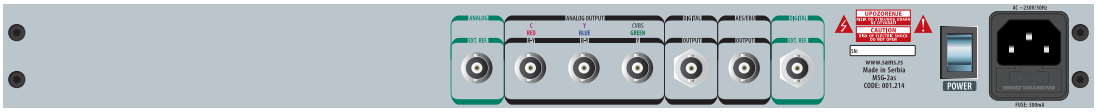
MSG-2as

SDI / AES/EBU / multiformat analog signal generator

- Broadcast quality (10bit extended)
- Analog component (YCrCb / RGB / YC) and composite CVBS output
- SDI output with embeded audio
- AES/EBU output
- Digital or analog external genlock
- Internal precision master clock 1ppm
- Supperior jitter performance
- 26 different tests
- Auto Cable EQ excedeing 200m (usualy 300m depend on cable quality)
- Pal CVBS color framing and phase adjustment
- Easy setup with local control and LCD display

The MSG-2as is multiformat signal generator. MSG-2 synchronize output test from external digital or analog genlock source. MSG-2 may also be system reference with intermal precision master clock 1ppm. With both, digital and analog - composite and component (Y, Cr, Cb or RGB or YC) outputs available, this module is perfect as master video reference in combined digital and analog facilities. Provided adjustments for analog video are: Horisontal and Vertical Position, SC Phase and Color Framing. Included tests are: bars 75%, bars+red 75%, bars 100%, bars+red 100%, red, green, blue, black, 50% field, 100% field, convergence, pluge, bounce, activeline, 10 steps, 10 mod steps, ramp, mod ramp, 2t 10t bar, pulse bar, sin(x)/x, multiburst 60%, sweep, check field, eq and pll. Audio adjustment are: frequency (0Hz-20Khz), output level for every channel (-63dbFS to 0dbFS) and audio click time for every channel.

front side



rear side

TECHNICAL SPECIFICATIONS

Specifications and designs are subject to change without notice

GENERAL INFORMATION

- Code: 001.214
- Weight: 1.5 Kg
- Type: 1RU rack frame
- Dimensions: 1RU x 19" x 150mm
- Delivery includes: device, power corde, user manual

DIGITAL OUTPUT

- Number: 1, BNC female
- Signal type: Serial digital (SMPTE259M)
- Impedance: 75Ω
- Jitter: < 0.2UI (Tipical 0.1UI @ Color Bar, 10Hz filter mode)
- Level: 800mV ± 10%

ANALOG OUTPUT

- Number: 3, (YUV, RGB, YC, CVBS) BNC female
- Impedance: 75Ω

AES/EBU OUTPUT

- Number: 1, BNC female
- Output level: 1V ± 0.1V
- Frequency: Silence to 20KHz (10Hz step)
- Level: -63dbFS to 0dbFS

DIGITAL REFERENCE

- Number: 2, BNC female
- Signal type: Serial digital (SMPTE 259M)
- Impedance: 75Ω
- Input level: 800mV ± 10%

ANALOG REFERENCE

- Analog BB 300 mV: 1, BNC

MASTER OSCILATOR

- Frequency: 27.000000MHz VCTCXO
- Accuracy: ± 1PPM @ 25°C
- Stability versus temperature: ± 1PPM 0°-55°C
- Stability versus time: ± 1PPM / Year max.

OUTPUT PERFORMANCE

- Bit resolution: 10/12bit processing
- Black offset: Self adjusting
- H adjustment range: 0-64µs in 37ns steps
- V adjustment range: 0-625 lines in 1 line step
- SC range: 0-360°

POWER

- Voltage: ~230V AC ± 10%
- Power: 30W
- Frequency: 50Hz
- Overload protection: front Mounted Circuit Breaker

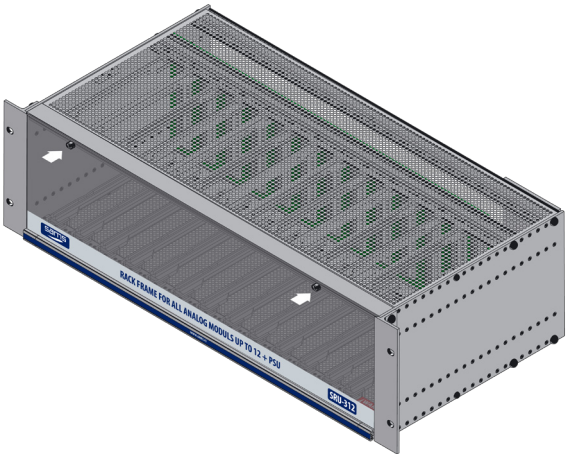
TEMPERATURE

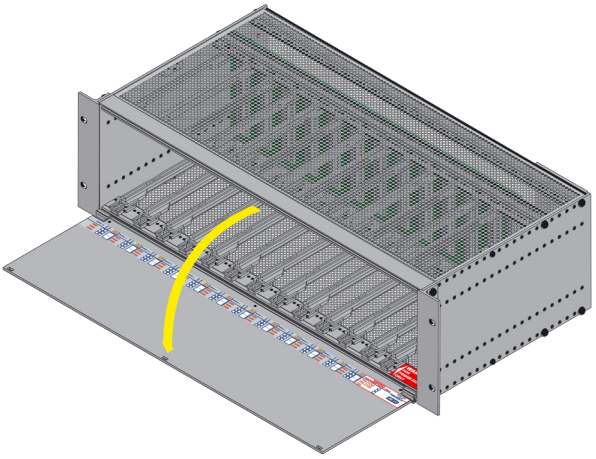
- Performance: 5-40°C
- Operating: 0-50°C

ORDERING INFORMATION

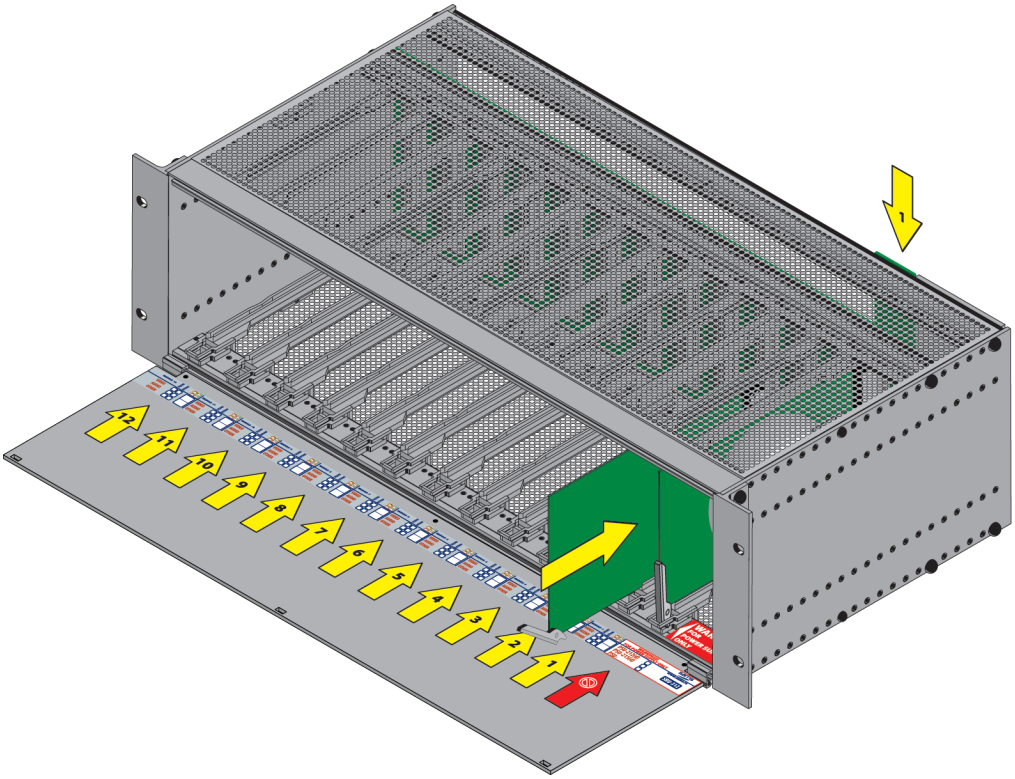
Code	Name	Description
001.214	MSG-2as	SDI / AES / Analog signal generator

MODULE INSTALATION IN SRU RACK FRAMES





- On the front side of rack frame, unscrew the screws.
- Open the door.



Make sure that the module is set to the correct place in relation to the back connector.

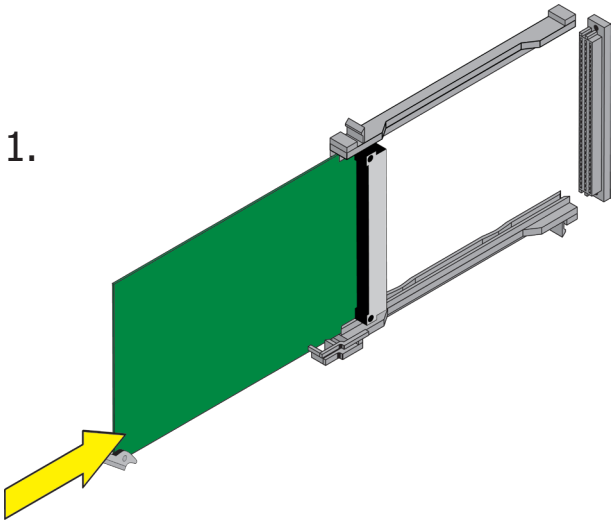
BEFORE INSTALLING OR REMOVING THE MODULE FROM SRU, ALWAYS TURN OFF THE POWER

Lock module with lever to the position.

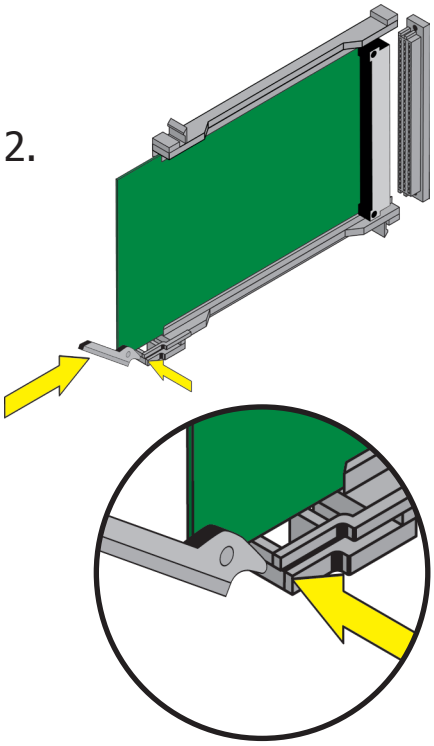
NOTE: NEVER PLACE MODULE TO PLACE OF THE POWER SUPPLY MODULE!

The label that indicates the place for power supply module

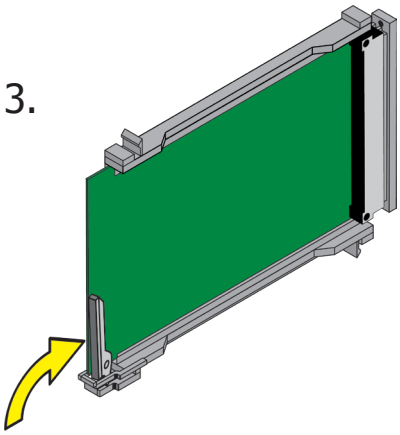
1.



2.

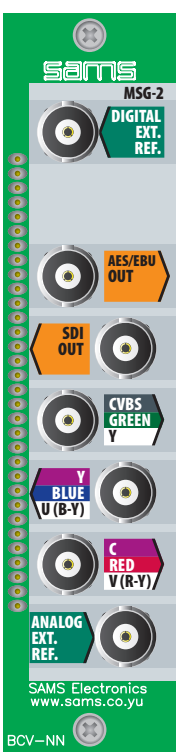


3.



1. The module set between the guides (not metal plate).
2. Locking lever mount behind the groove.
3. Push the lever to lock in an upright position. The module is locked.

BACK CONNECTORS



Fix the back connector with M2.5 screw.

SDI REFERENCE

AES-3id OUT

SDI IN

ANALOG OUTPUT

ANALOG OUTPUT

ANALOG OUTPUT

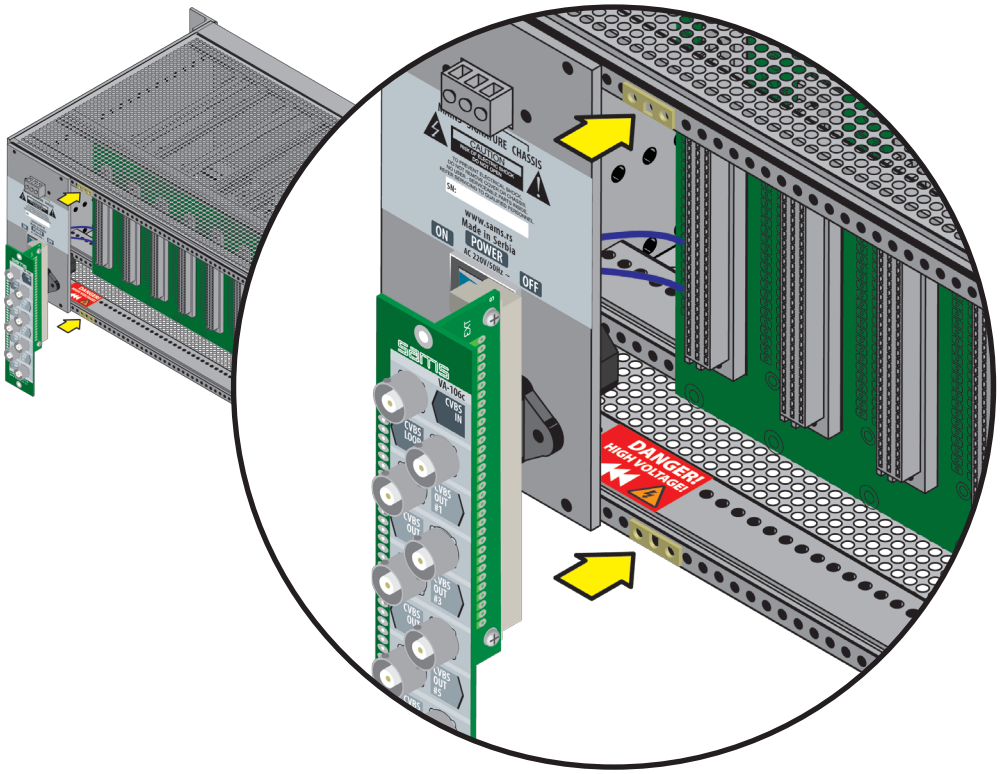
ANALOG REFERENCE

Fix the back connector with M2.5 screw.

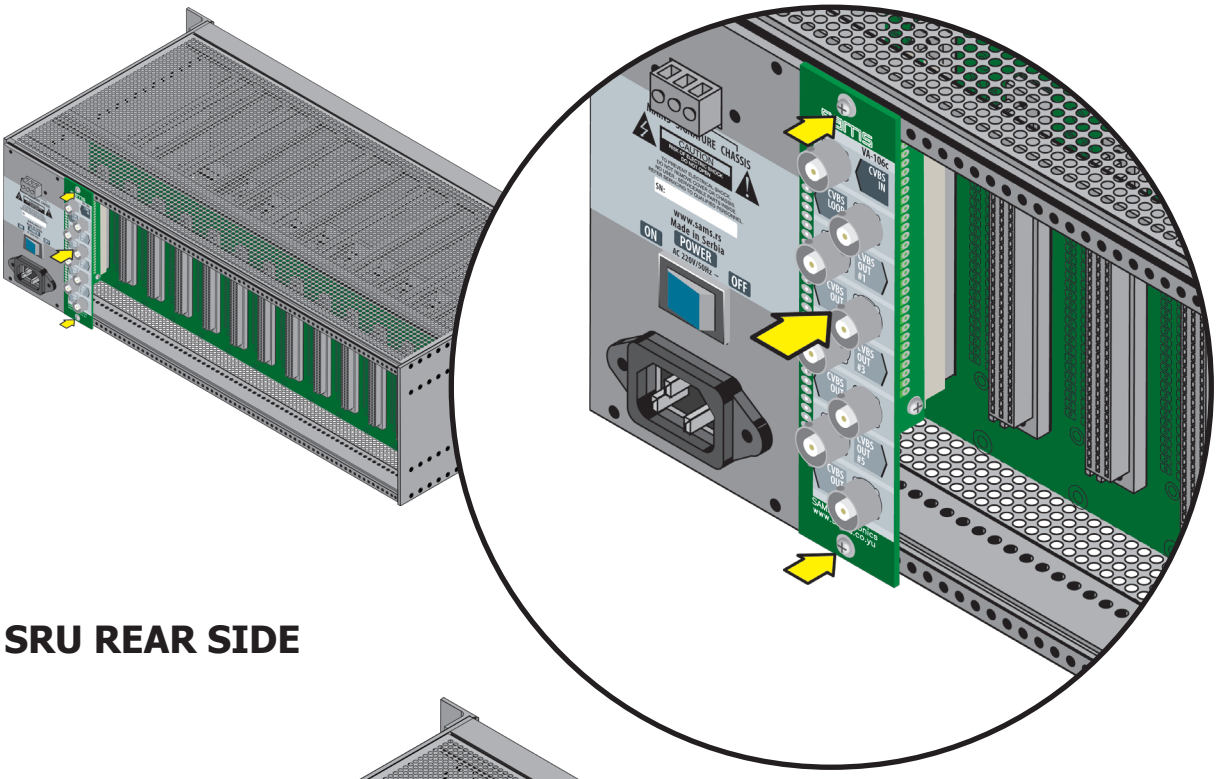
OPTIONS
1. CVBS & YC
2. YUV
3. RGB

MSG-2

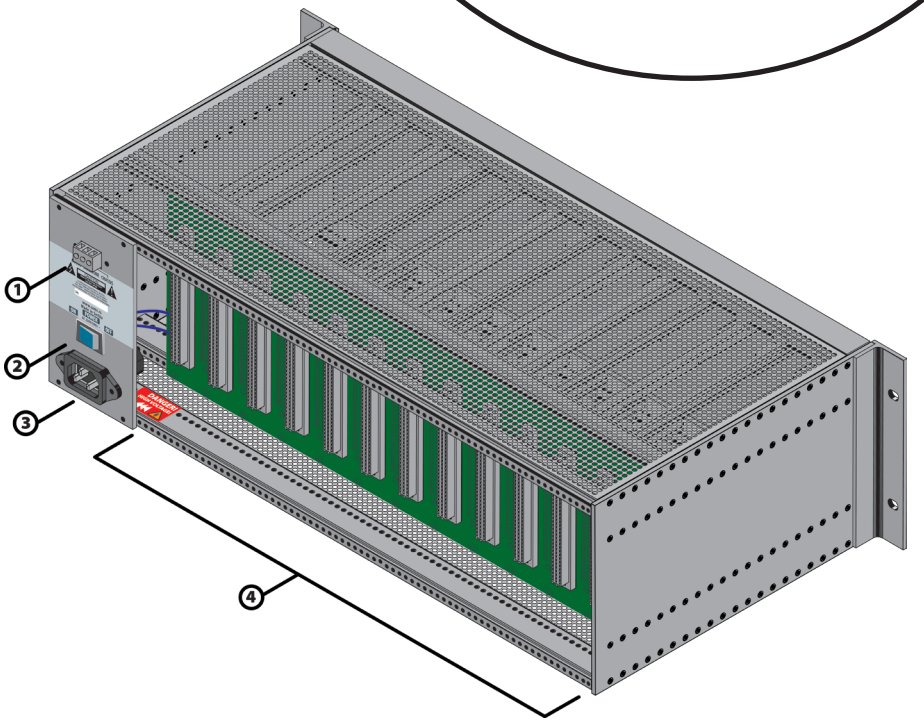
Be sure to install a protective pad before installing the back connectors.



Place the back connector. Fix the back connector with M2.5 screw.



SRU REAR SIDE



Rear side view

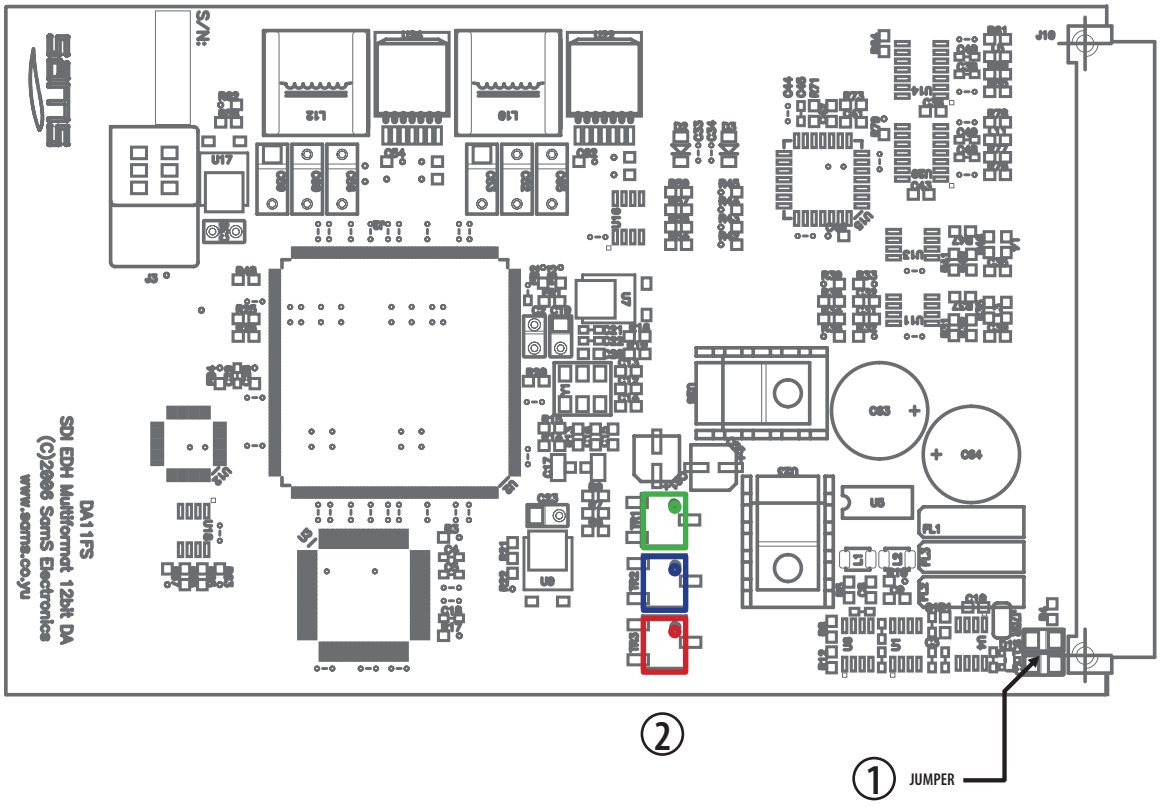
1. Mass
2. Power switch
3. The socket
4. Connections for back connectors

DO NOT INSERT SHARP METAL OBJECTS OR FINGERS INTO THE SPACE BEHIND THE POWER PANEL!

THE SIGN "LIGHTNING IN A TRIANGLE" IS TO ALERT THE USER TO THE PRESENCE OF LIFE-THREATENING HIGH POWER.

LABEL IS PLACED NEXT TO POWER PANEL.

PCB WITH THE LAYOUT OF ELEMENTS

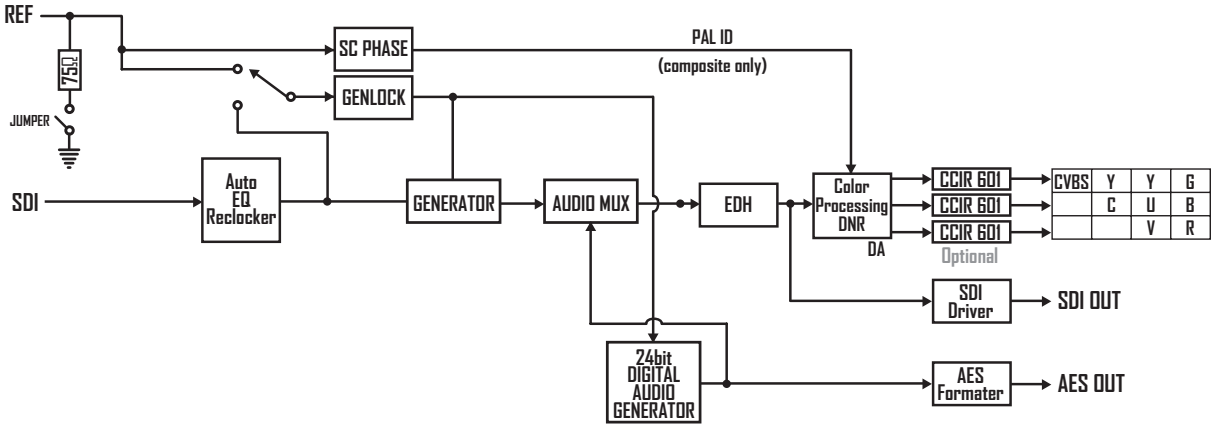


NOTE!
1. The reference signal, the jumper must be set.
2. Advanced users can adjust the output level of the analog signal by turning the trimmer.

Trimmers to control the level of the video signal

	CVBS	Y	GREEN
	Y	U	BLUE
	C	V	RED

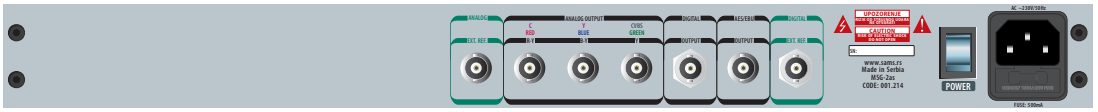
BLOCK DIAGRAM



INSTALLATION (STANDALONE)

For the best signal quality use:
- Belden 8281 or better coaxial cable for analog video
- Belden 1694A or better coaxial cable for digital video

Connect the power cord.
The device works only on AC ~ 230 V / 50 Hz. **1**

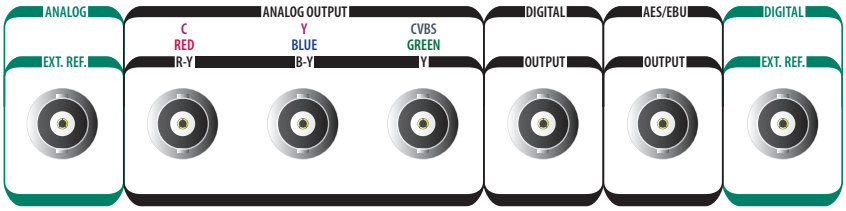


Rear side

Connect all necessary connectors
before the unit is turned on. **2**

Turn on the device
by pressing switch. **3**

Connectors on rear side



Ulaz analogne eksterne rererence
Uređaj podržava generator crne
(kao Sams MSG-BB6).

Analogni ulazi
Uređaj podržava kompozitni
i komponentni signal.

SDI izlaz

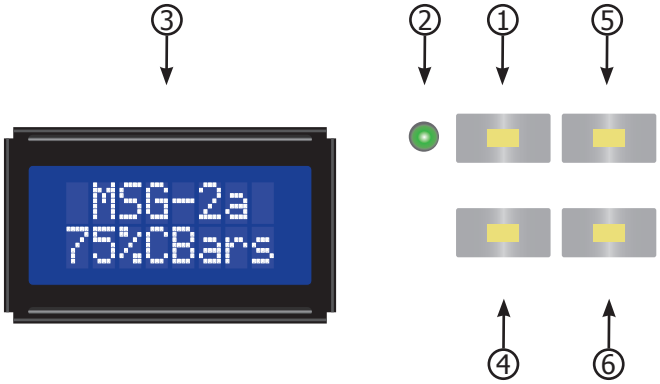
AES-3id
izlaz

Ulaz digitalne eksterne reference
Uređaj podržava digitalnu referencu.

Front side

4 If everything is OK, the LED will glow green or orange
(depending on the settings).

THE DEVICE FUNCTIONS



If the device is properly connected, on display will be 75% COLOR BAR.

1. OK/SAVE push button - enters the submenu / saving
2. STATUS diode:

✳ GREEN flashign - internal reference
✳ ORANGE flashing - external reference

NOTE: If the LED is not flashing, the device is malfunctioning.

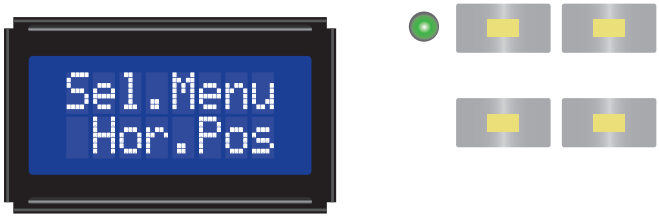
3. Display
4. MENU/BACK push button - enter the menu from status mode / exit from the submenu
5. UP push button - choose the value in the submenu
6. DOWN push button - choose the value in the submenu

FACTORY SETUP

HORIZONTAL POSITION:	0.000µs
VERTICAL POSITION:	Line 0
SC PHASE:	0.00°
Colour FRAMING:	Frame 0
Output:	CVBS & YC
GENLOCK:	OFF
AUDIO FREQUENCY	1000Hz
CH 1 LEVEL	0db
CH 2 LEVEL	0db
CH 3 LEVEL	0db
CH 4 LEVEL	0db
ALL CH LEVEL	0db
CH 1 CLICK	OFF
CH 1 CLICK	OFF
CH 1 CLICK	OFF
CH 1 CLICK	OFF
ALL CLICK	OFF

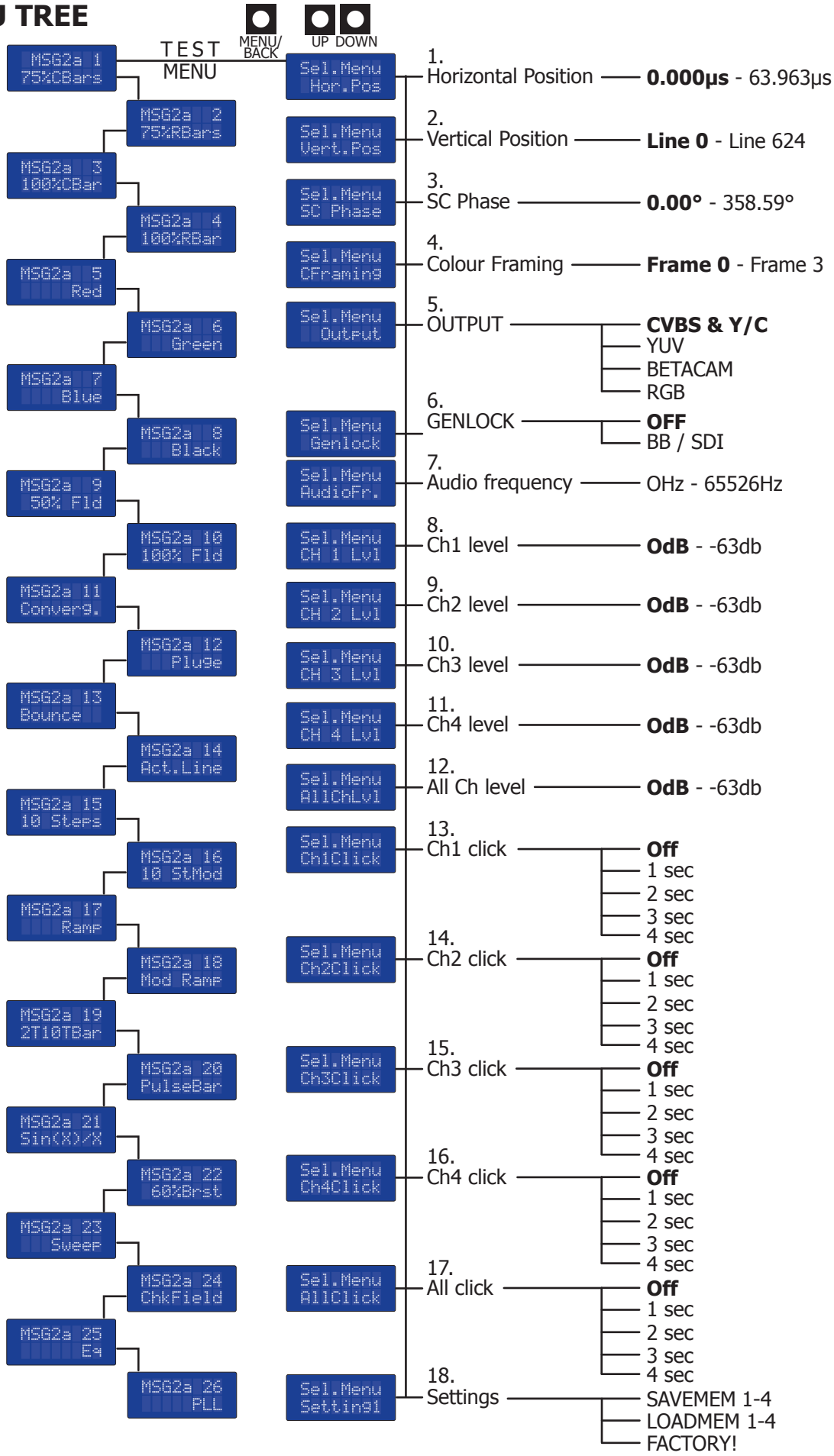
MENU

To set the device, press the "MENU / BACK" button. Select the menu by pressing the UP / DOWN keys. On the selected menu, press OK.



Entering the menu for setting the device

MENU TREE


TEST MENU
MENU/ BACK
UP DOWN
MSG2a 1 75%CBars
MSG2a 2 75%RBars
MSG2a 3 100%CBar
MSG2a 4 100%RBar
MSG2a 5 Red
MSG2a 6 Green
MSG2a 7 Blue
MSG2a 8 Black
MSG2a 9 50% Fld
MSG2a 10 100% Fld
MSG2a 11 Conver9.
MSG2a 12 Pluge
MSG2a 13 Bounce
MSG2a 14 Act.Line
MSG2a 15 10 Steps
MSG2a 16 10 StMod
MSG2a 17 Ramp
MSG2a 18 Mod Ramp
MSG2a 19 2T10TBar
MSG2a 20 PulseBar
MSG2a 21 Sin(X)/X
MSG2a 22 60%Brst
MSG2a 23 Sweep
MSG2a 24 ChkField
MSG2a 25 Eq
MSG2a 26 PLL
Sel.Menu Hor.Pos
Sel.Menu Vert.Pos
Sel.Menu SC Phase
Sel.Menu CFraming
Sel.Menu Output
Sel.Menu Genlock
Sel.Menu AudioFr.
Sel.Menu CH 1 Lvl
Sel.Menu CH 2 Lvl
Sel.Menu CH 3 Lvl
Sel.Menu CH 4 Lvl
Sel.Menu AllChLvl
Sel.Menu Ch1Click
Sel.Menu Ch2Click
Sel.Menu Ch3Click
Sel.Menu Ch4Click
Sel.Menu AllClick
Sel.Menu Setting1
1. Horizontal Position — 0.000µs - 63.963µs
2. Vertical Position — Line 0 - Line 624
3. SC Phase — 0.00° - 358.59°
4. Colour Framing — Frame 0 - Frame 3
5. OUTPUT — CVBS & Y/C; YUV; BETACAM; RGB
6. GENLOCK — OFF; BB / SDI
7. Audio frequency — OHz - 65526Hz
8. Ch1 level — OdB - -63db
9. Ch2 level — OdB - -63db
10. Ch3 level — OdB - -63db
11. Ch4 level — OdB - -63db
12. All Ch level — OdB - -63db
13. Ch1 click — Off; 1 sec; 2 sec; 3 sec; 4 sec
14. Ch2 click — Off; 1 sec; 2 sec; 3 sec; 4 sec
15. Ch3 click — Off; 1 sec; 2 sec; 3 sec; 4 sec
16. Ch4 click — Off; 1 sec; 2 sec; 3 sec; 4 sec
17. All click — Off; 1 sec; 2 sec; 3 sec; 4 sec
18. Settings — SAVEMEM 1-4; LOADMEM 1-4; FACTORY!

1. HORIZONTAL POSITION

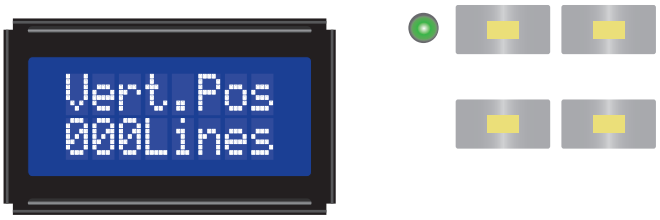
This menu is used to adjust the horizontal phase of the output video signal.
Horizontal phase shifts in the intervals 37ns (half of one pixel) up to a maximum of one video line (63.963μs).
During the change in value, it may cause short-term image disturbance in monitor due to the transition to a new time.
The factory setting is 0.000μs.
Select an option by pressing the UP / DOWN keys.

Menu - Horizontal position

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

2. VERTICAL POSITION

This menu is used to adjust the vertical phase of the output video signal.
The vertical delay is adjusted in increments of one video line, from 0 up to the 624.
The factory setting is 0 lines.
Select an option by pressing the UP / DOWN keys.



Menu - Vertical position

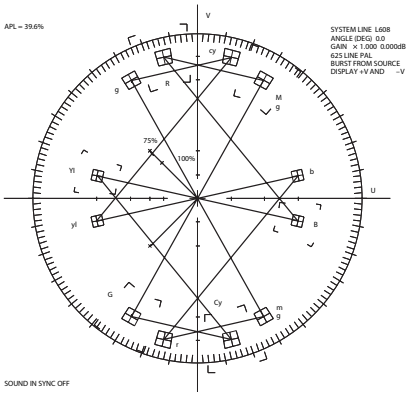
Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

3. SC PHASE

This menu is used to adjust the Subcarrier Phase of the output video signal.
Subcarrier Phase shifts in the step of 1.41°.
The factory setting is 00.00 °.
Select an option by pressing the UP / DOWN keys.

Menu - SC Phase

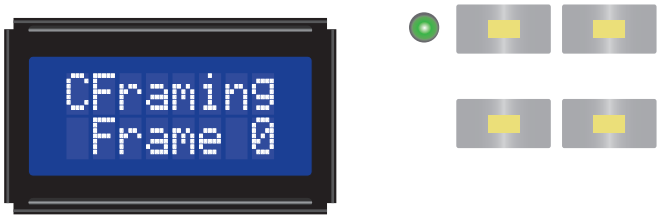
Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.



Pal Vector Plot

4. COLOUR FRAMING

This menu is used to set the color framing.
Due to the different length cables for external references, it is sometimes necessary to change the PAL sequence start.
NOTE: Color framing in a given field work only when connected to an external reference.
The default setting is Frame is 0.
Select an option by pressing the UP / DOWN keys.



Menu - Color Framing

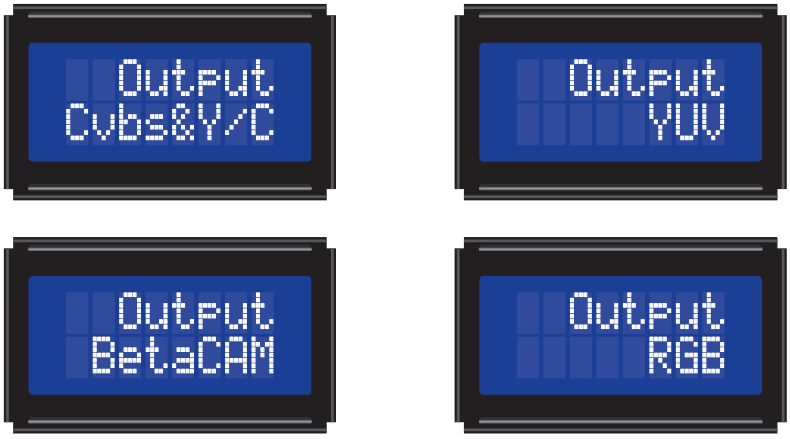
Ulaz reference	Poluslika	0	1	2	3
	Talasni oblik burst-a				
Izlaz reference (Frame 0)	Poluslika	3	0	1	2
	Talasni oblik burst-a				
Izlaz reference (Frame 1)	Poluslika	3	0	1	2
	Talasni oblik burst-a				

Overview of possible values

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

5. OUTPUT

This menu is used to select the outgoing signal.
Options are: CVBS & YC, YUV, BetaCam and RGB.
The factory setting is CVBS.
Select an option by pressing the UP / DOWN keys.

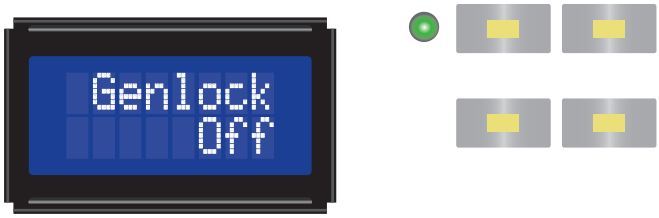


Menu - Output

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

6. GENLOCK

MSG-2 output test can be synchronized to external SDI or analog reference. MSG-2 may also be a system reference because it has internal precision "master clock" of 1ppm. Use one of the two options:
OFF: The device uses an internal clock (1ppm).
BB / SDI: The device uses an external genlock if it is present, and if not uses internal.
Factory setting: OFF.
The adjustment is made by pressing the UP / DOWN keys.

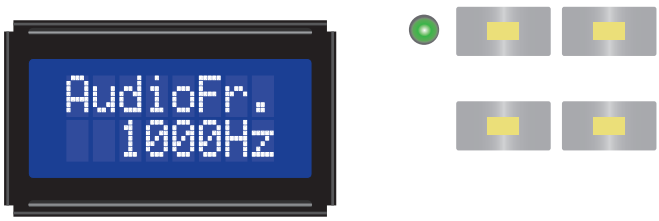


Menu - Genlock

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

7. AUDIO FREQUENCY

This menu controls the frequency of the audio signal output through the AES-3id output and with the embeded video signal.
The choice of frequency is in the range of 0 to 22000Hz in steps of 10 Hz.
Factory setting: 1000Hz.
The adjustment is made by pressing the UP / DOWN keys.

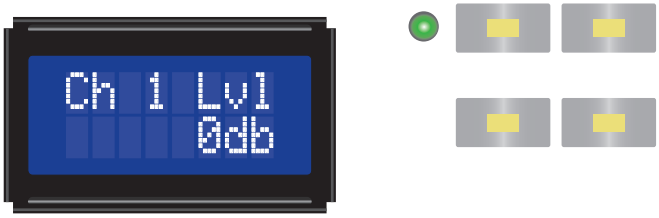


Menu - Audio Frequency

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

8. CH 1 LEVEL

This menu controls the level of the channel 1 audio signal.
Choosing the level is in the range of 0 to -63db.
Factory setting: 0dB.
The adjustment is made by pressing the UP / DOWN keys.

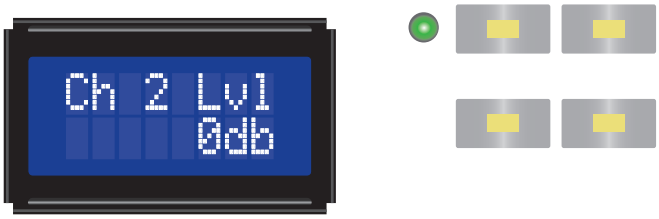


Menu - CH 1 Level

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

9. CH 2 LEVEL

This menu controls the level of the channel 2 audio signal.
Choosing the level is in the range of 0 to -63db.
Factory setting: 0dB.
The adjustment is made by pressing the UP / DOWN keys.

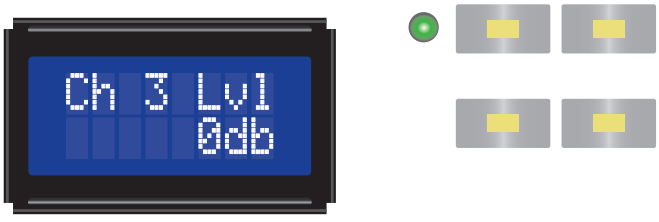


Menu - CH 2 Level

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

10. CH 3 LEVEL

This menu controls the level of the channel 3 audio signal.
Choosing the level is in the range of 0 to -63db.
Factory setting: 0dB.
The adjustment is made by pressing the UP / DOWN keys.

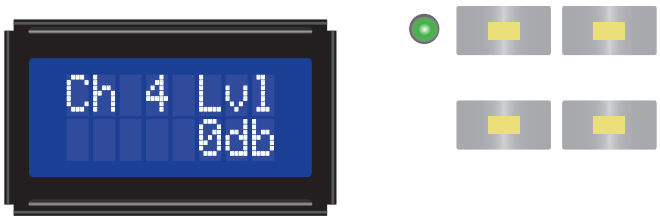


Menu - CH 3 Level

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

11. CH 4 LEVEL

This menu controls the level of the channel 4 audio signal.
Choosing the level is in the range of 0 to -63db.
Factory setting: 0dB.
The adjustment is made by pressing the UP / DOWN keys.

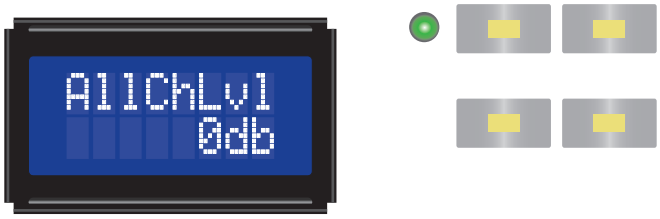


Menu - CH 4 Level

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

12. ALL CH LEVEL

This menu controls the level of the all 4 channels.
Choosing the level is in the range of 0 to -63db.
Factory setting: 0dB.
The adjustment is made by pressing the UP / DOWN keys.

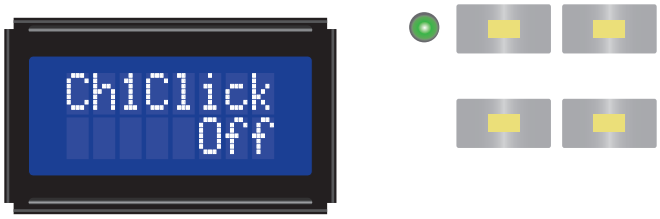


Menu - All CH Level

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

13. CH 1 CLICK

This menu controls the click of channel 1 audio signal.
Click may appear with delay of 1, 2, 3 or 4 seconds, or may be OFF.
Factory setting: OFF.
The adjustment is made by pressing the UP / DOWN keys.

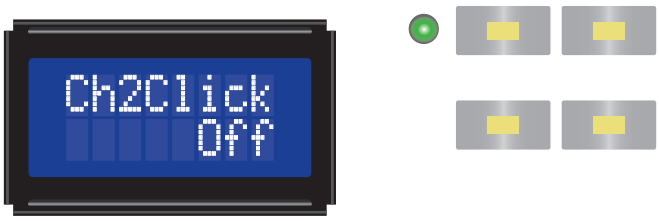


Menu - CH 1 Click

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

14. CH 2 CLICK

This menu controls the click of channel 2 audio signal.
Click may appear with delay of 1, 2, 3 or 4 seconds, or may be OFF.
Factory setting: OFF.
The adjustment is made by pressing the UP / DOWN keys.

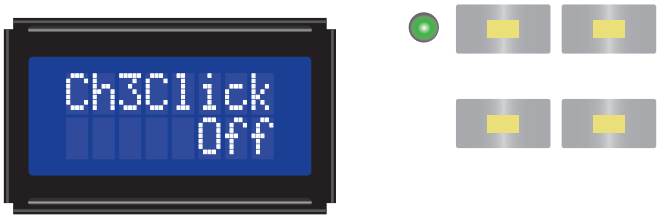


Menu - CH 2 Click

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

15. CH 3 CLICK

This menu controls the click of channel 3 audio signal.
Click may appear with delay of 1, 2, 3 or 4 seconds, or may be OFF.
Factory setting: OFF.
The adjustment is made by pressing the UP / DOWN keys.

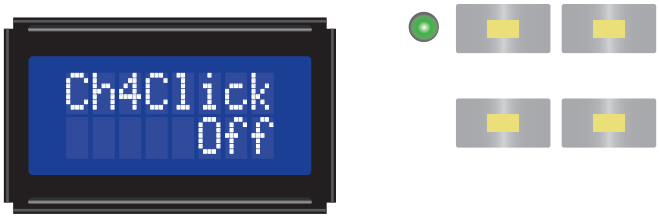


Menu - CH 3 Click

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

16. CH 4 CLICK

This menu controls the click of channel 4 audio signal.
Click may appear with delay of 1, 2, 3 or 4 seconds, or may be OFF.
Factory setting: OFF.
The adjustment is made by pressing the UP / DOWN keys.

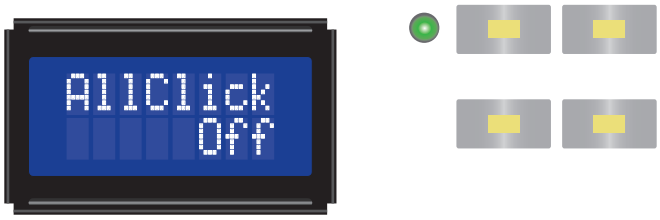


Menu - CH 4 Click

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

17. ALL CLICK

This menu controls the click of all 4 channels.
Click may appear with delay of 1, 2, 3 or 4 seconds, or may be OFF.
Factory setting: OFF.
The adjustment is made by pressing the UP / DOWN keys.



Menu - All Click

Once you have selected the option, press the "MENU / BACK" button. Option is temporarily saved.

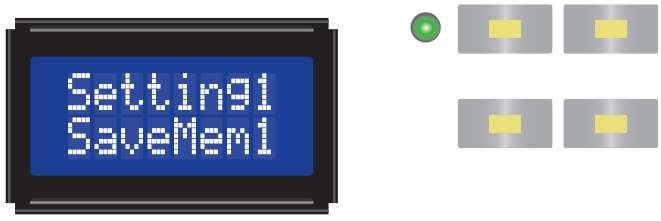
18. SETTINGS

After setup within the available menu options, it is temporarily recorded in the memory. The number next to "Setting" means that the bank is loaded into memory.

When the device is set, select SETTING menu, press the "OK / SAVE" to open the options menu and select one of four banks to record: SaveMem1, SaveMem2, SaveMem3 and SaveMem4. The device can record 4 different settings.
After selecting a bank press "OK / SAVE". The display will print "SAVED".
If you want to stay in this menu, press the UP / DOWN keys, and to exit the MENU / BACK button.

In this menu, there are options: LoadMem1, LoadMem2, LoadMem3 and LoadMem4 or options to load settings.
After selecting a bank press "OK / SAVE". The display will print "LOADED".
If you want to stay in this menu, press the UP / DOWN keys, and to exit the MENU / BACK button.

Option FACTORY! set default settings in the currently active bank.
Press the "OK / SAVE". On display will print 'RESETED. "
If you want to stay in this menu, press the UP / DOWN keys, and to exit the MENU / BACK button.



Menu - Settings

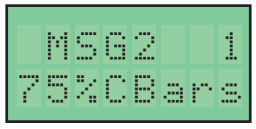
TEST MENU

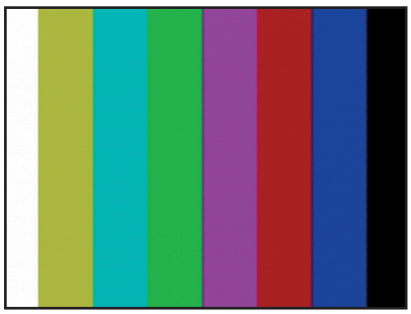
The device is always in this menu. If you want to change the settings, press MENU / BACK button.
If you see a sign * on the display, the device uses an external reference. In this case, the LED will flash in orange. Without the * character and when the LED flashes green, the device uses an internal reference.

TESTS

The device has 26 different tests for analog and digital systems.

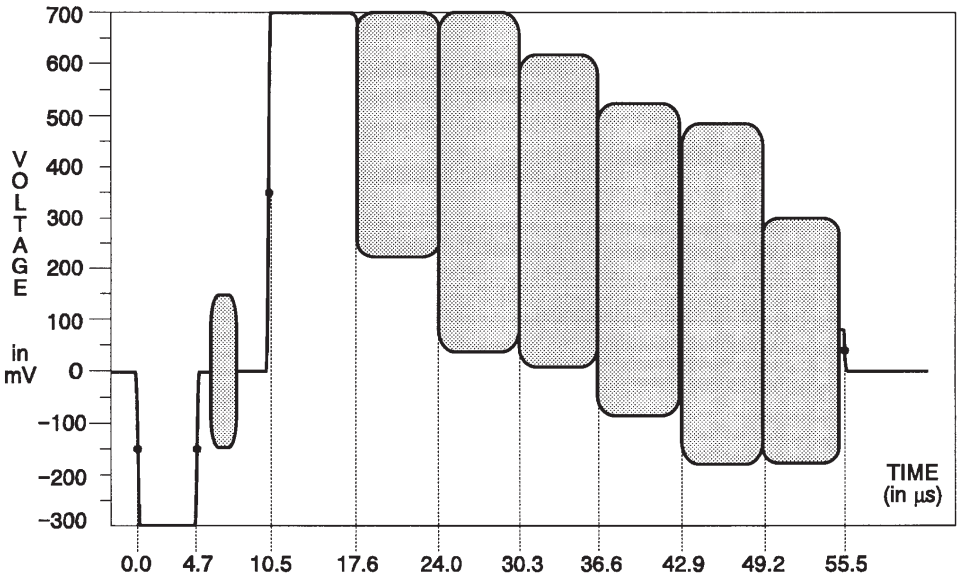
1. 75% COLOR BAR





Test 1: 75% Color Bar

Characteristics	Definition of signal
	Luminance Amplitude [mV]
White	700.0
Yellow	465.1
Cyan	368.0
Green	308.2
Magenta	216.8
Red	157.0
Blue	59.9

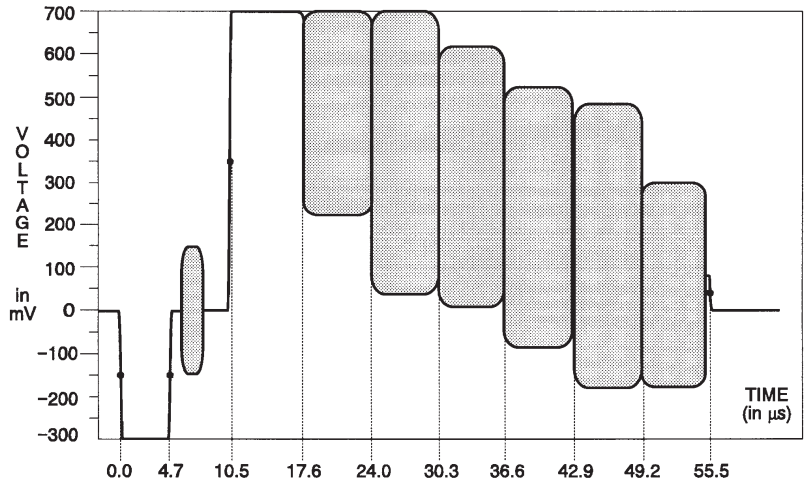


Test 1: 75% Color Bar
Composite

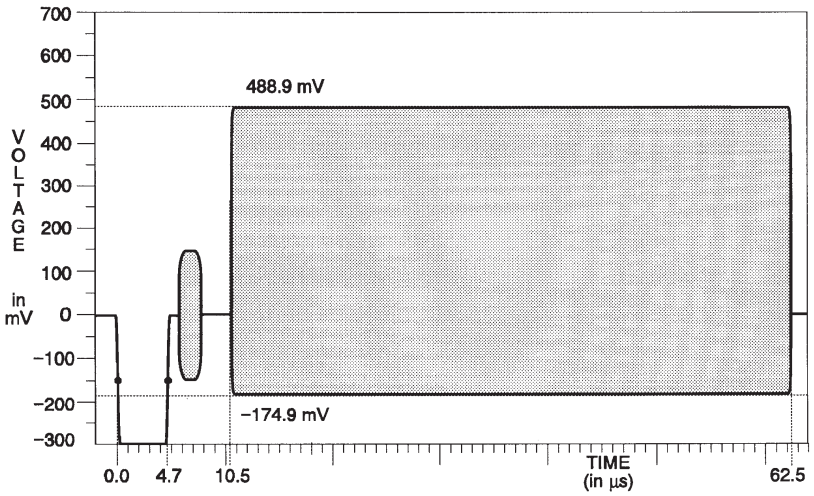
2. 75% COLOR BAR OVER RED

Test 2: 75% Color Bar over Red

Characteristics	Definition of signal
Field Timings	
Color Bars	Lines 24-166 & 336-478
Red	Lines 167-310 & 480-623
	Luminance Amplitude [mV]
White	700.0
Yellow	465.1
Cyan	368.0
Green	308.2
Magenta	216.8
Red	157.0
Blue	59.9

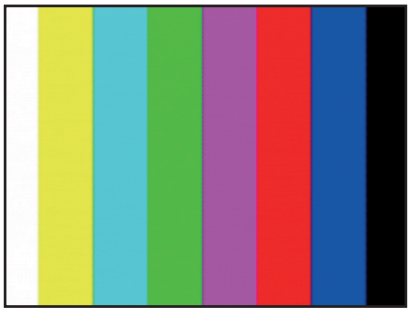


Test 2: 75% Color Bar over Red from 24 to 166 and from 336 to 478 line Composite



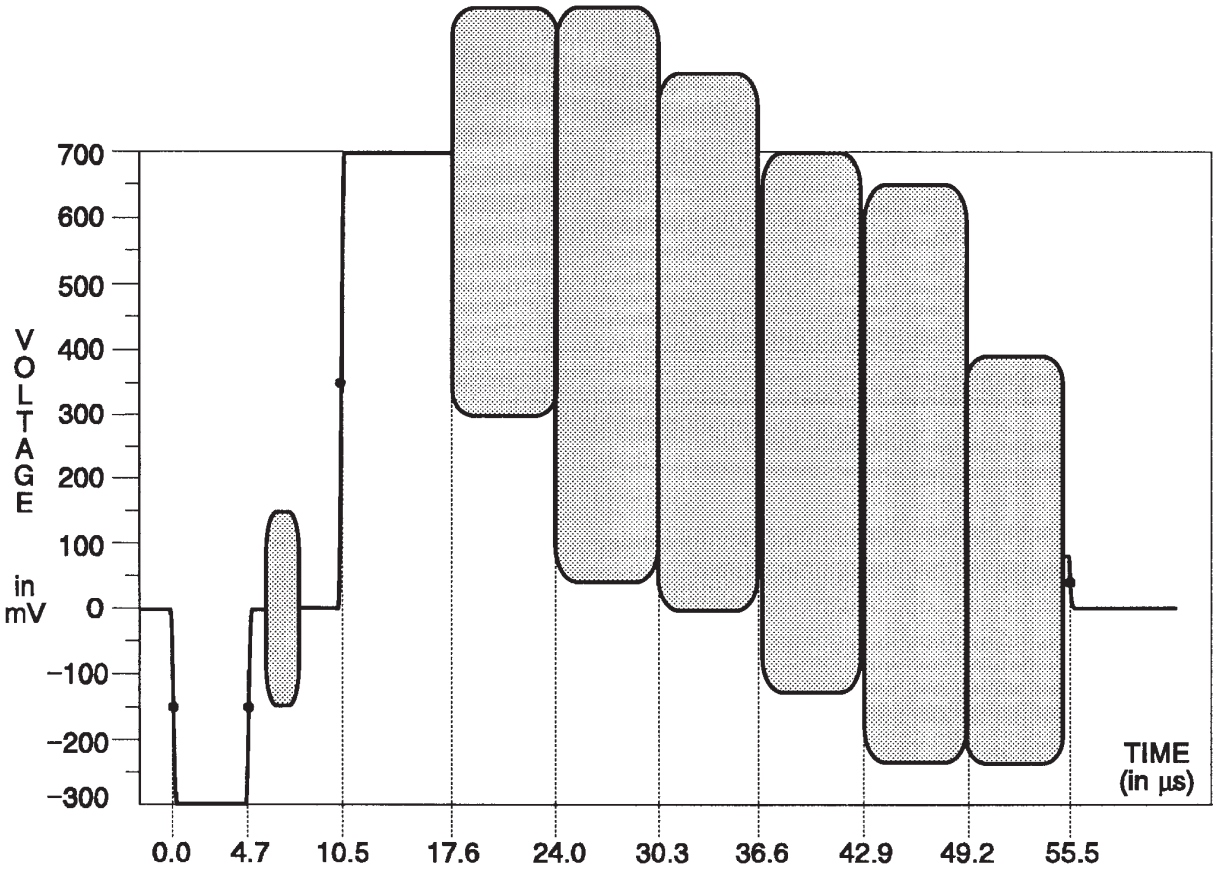
Test 2: 75% Color Bar over Red from 167 to 310 and from 480 to 623 line Composite

3. 100% COLOR BAR



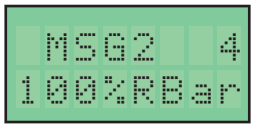
Test 3: 100% Color Bar

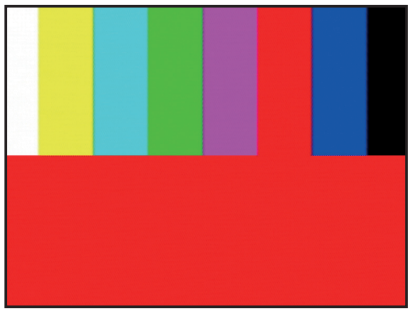
Characteristics	Definition of signal
	Luminance Amplitude [mV]
White	700.0
Yellow	620.2
Cyan	490.7
Green	410.9
Magenta	289.1
Red	209.3
Blue	79.8



Test 3: 100% Color Bar
Composite

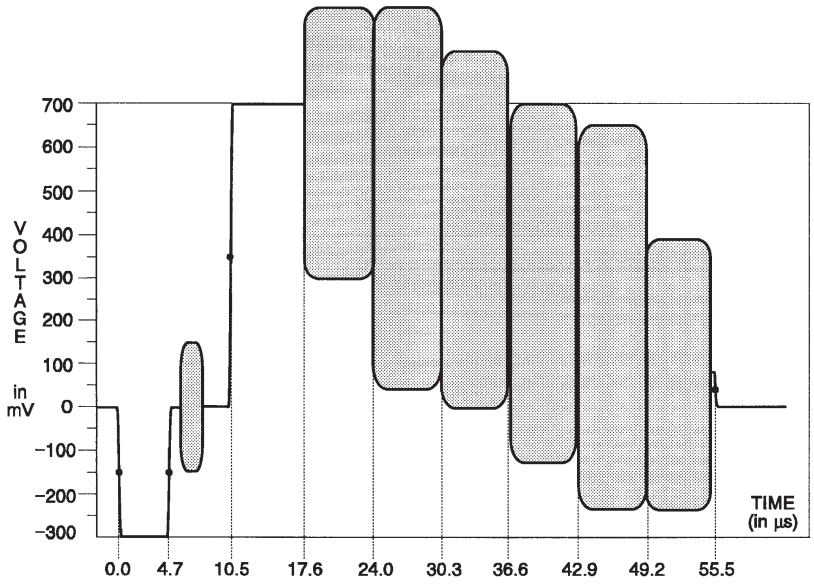
4. 100% COLOR BAR OVER RED



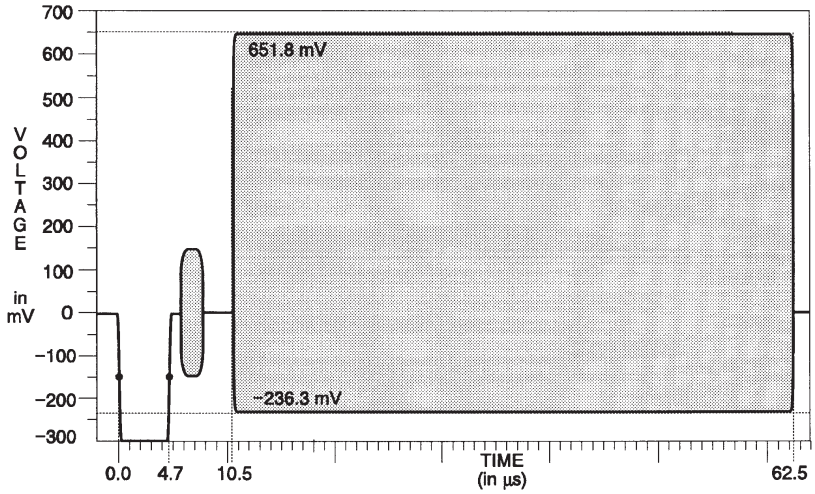


Test 4: 100% Color Bar over Red

Characteristics	Definition of signal
Field Timings	
Color Bars	Lines 24-166 & 336-478
Red	Lines 167-310 & 480-623
	Luminance Amplitude [mV]
White	700.0
Yellow	620.2
Cyan	490.7
Green	410.9
Magenta	289.1
Red	209.3
Blue	79.8



Test 4: 100% Color Bar over Red from 24 to 166 and from 336 to 478 line Composite

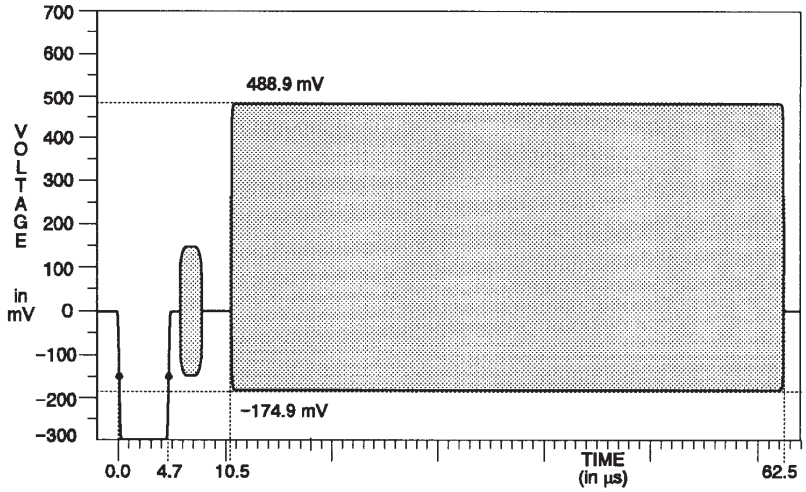


Test 4: 100% Color Bar over Red from 167 to 310 and from 480 to 623 line Composite

5. RED

Characteristics	Definition of signal
Luminance pedestal	157.0 mV

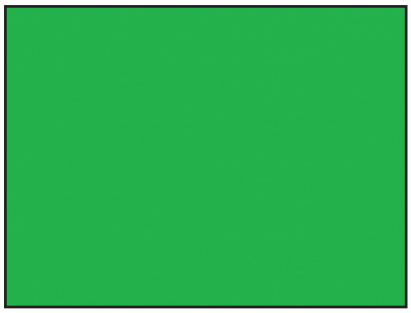
Test 5: Red



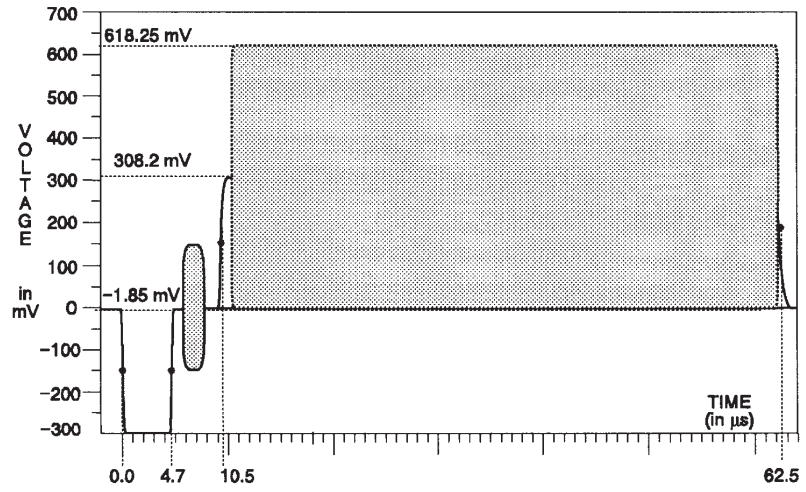
Test 5: Red
Composite

6. GREEN

Characteristics	Definition of signal
Luminance pedestal	308.2 mV



Test 6: Green

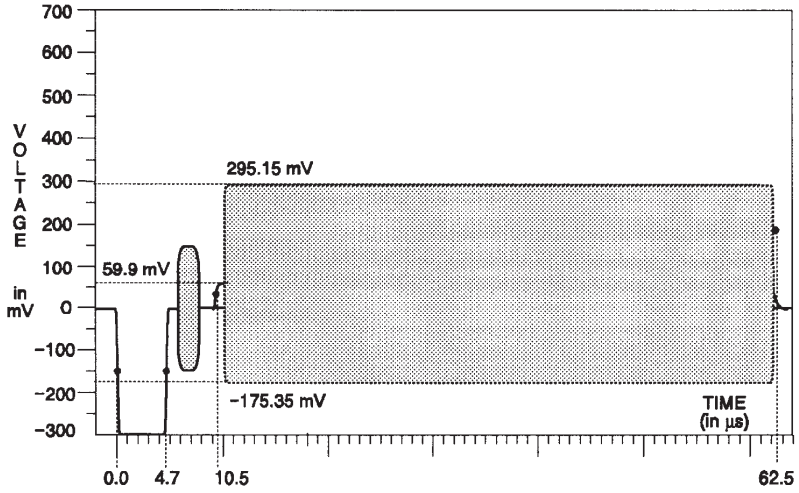


Test 6: Green
Composite

7. BLUE

Characteristics	Definition of signal
Luminance pedestal	59.9 mV

Test 7: Blue

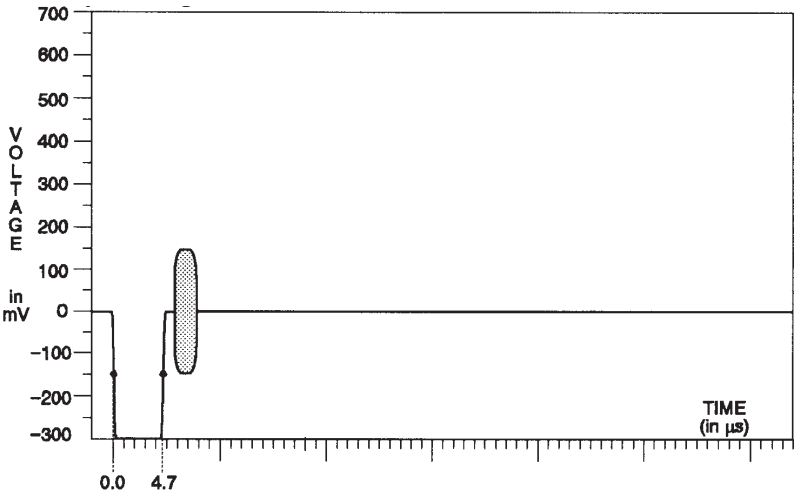


Test 7: Blue
Composite

8. BLACK

Characteristics	Definition of signal
0%	0 mV

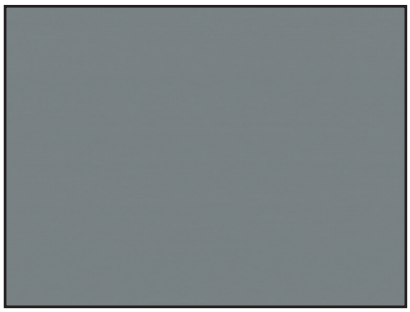
Test 8: Black



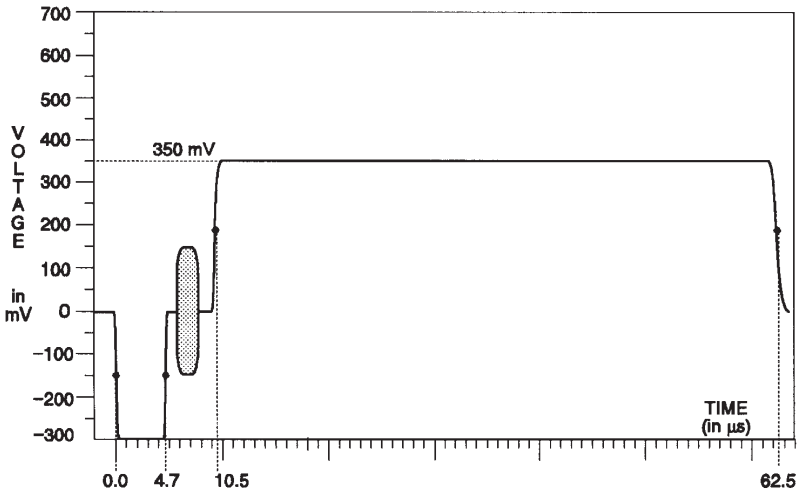
Test 8: Black
Composite

9. 50% FIELD

Characteristics	Definition of signal
50%	350 mV



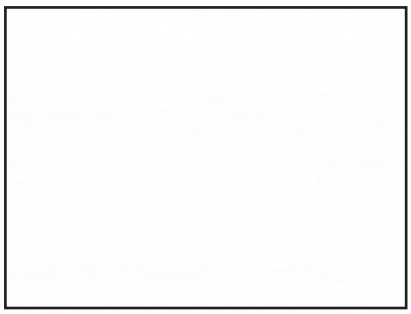
Test 9: 50% Field



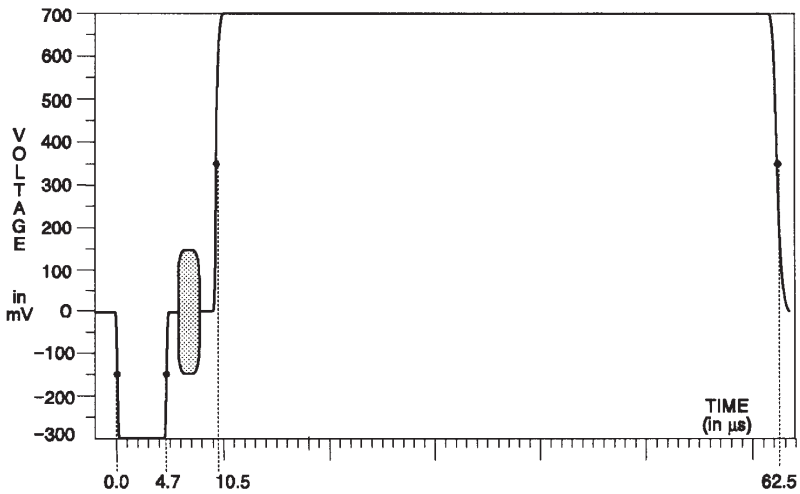
Test 9: 50% Field Composite

10. 100% FIELD

Characteristics	Definition of signal
50%	700 mV

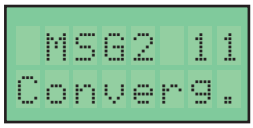


Test 10: 100% Field

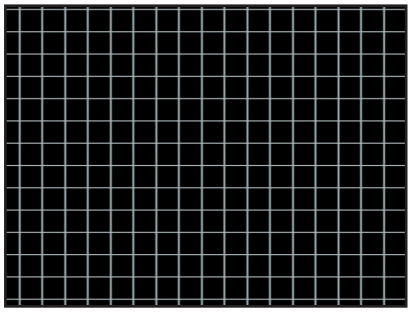


Test 10: 100% Field Composite

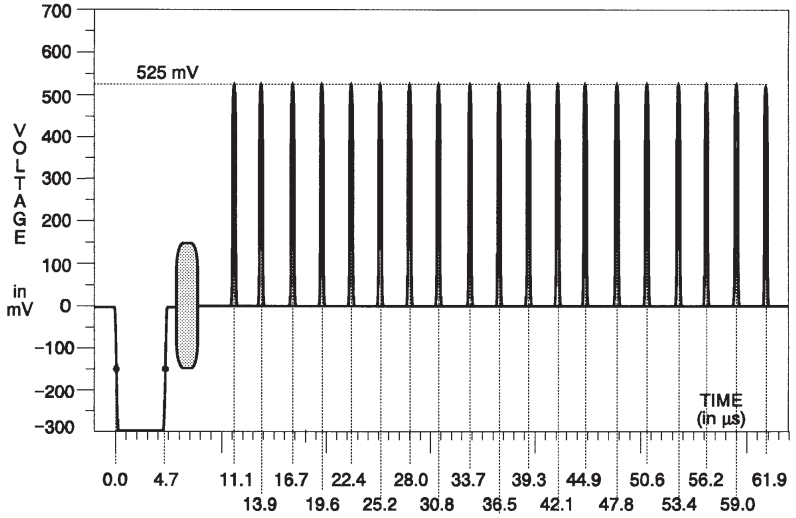
11. CONVERGENCE



Characteristics	Definition of signal
Amplitude Pattern	525.0 mV 14 lines/field and 19 lines/horiz



Test 11: Convergence

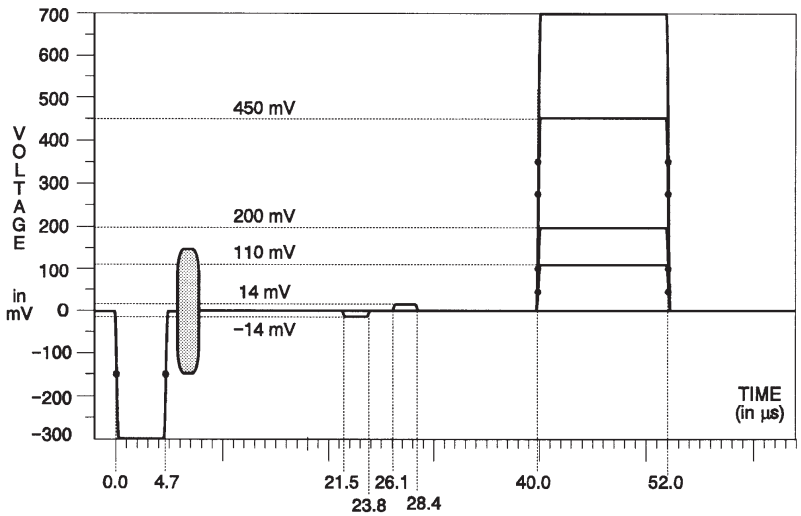


Test 11: Convergence Composite

12. PLUGE

Characteristics	Definition of signal
Pluge levels Lum Ref Levels	-14 mV and +14 mV 700 mV, 450 mV, 200 mV and 110 mV

Test 12: Pluge

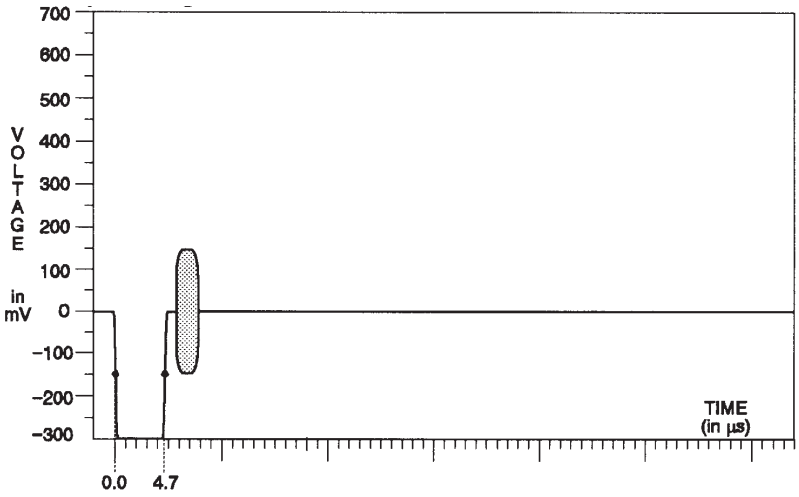


Test 12: Pluge Composite

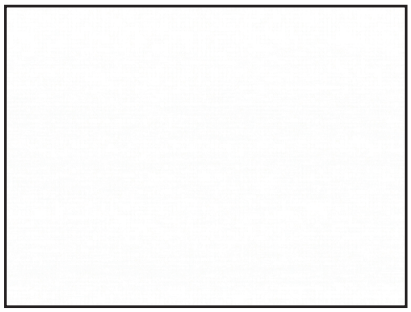
13. BOUNCE

Characteristics	Definition of signal
Amplitude Rate	0 or 700 mV flat field ≈ 1.3 sec high, 1.3 sec low

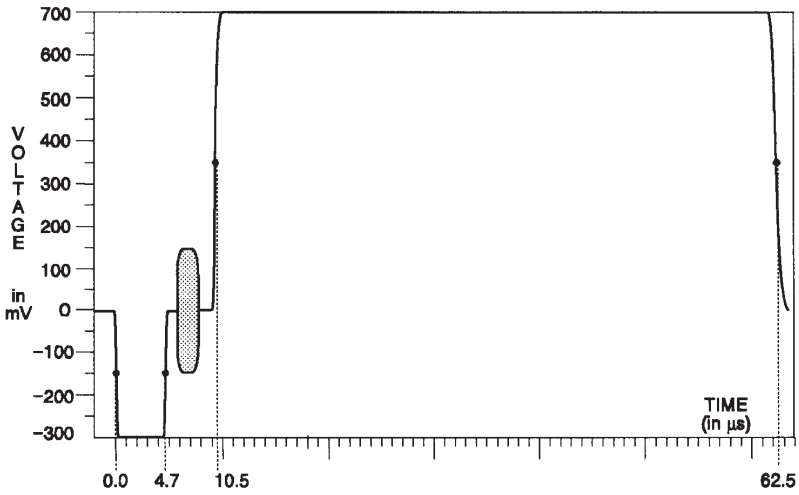
Test 13/1: Bounce



Test 13/1: Bounce
Composite

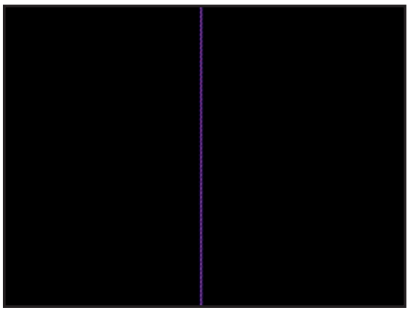


Test 13/2: Bounce

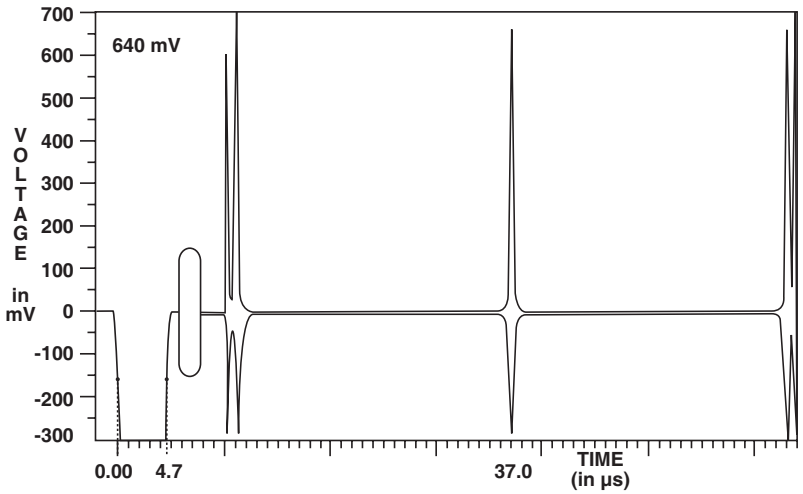


Test 13/2: Bounce
Composite

14. ACTIVE LINE



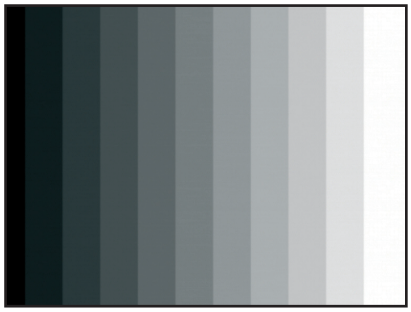
Test 14: Active line



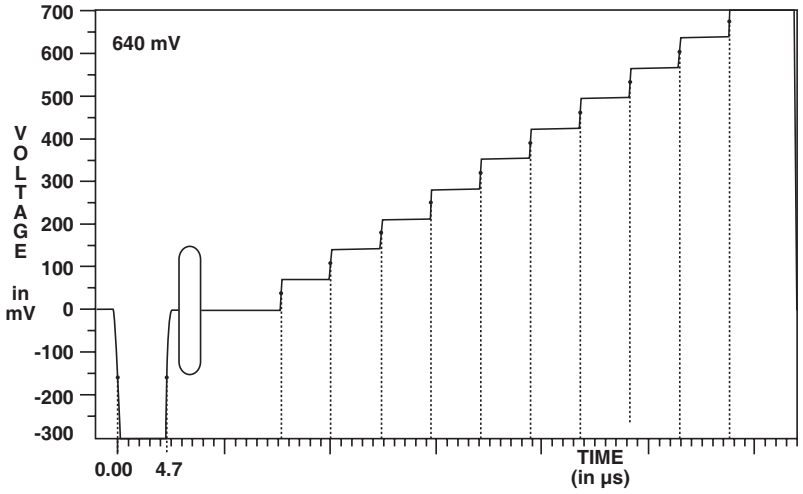
Test 14: Active line
Composite

15. 10 STEPS

Characteristics	Definition of signal
Amplitude	700 mV greyscale

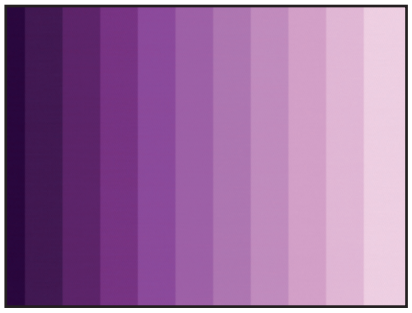


Test 15: 10 steps

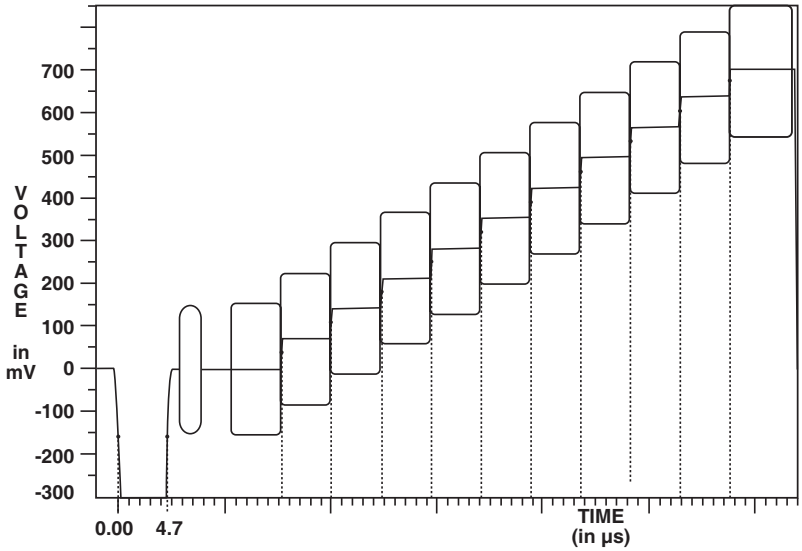


Test 15: 10 steps
Composite

16. 10 MODULATE STEPS



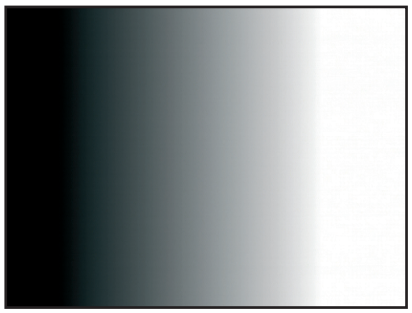
Test 16: 10 Modulate steps



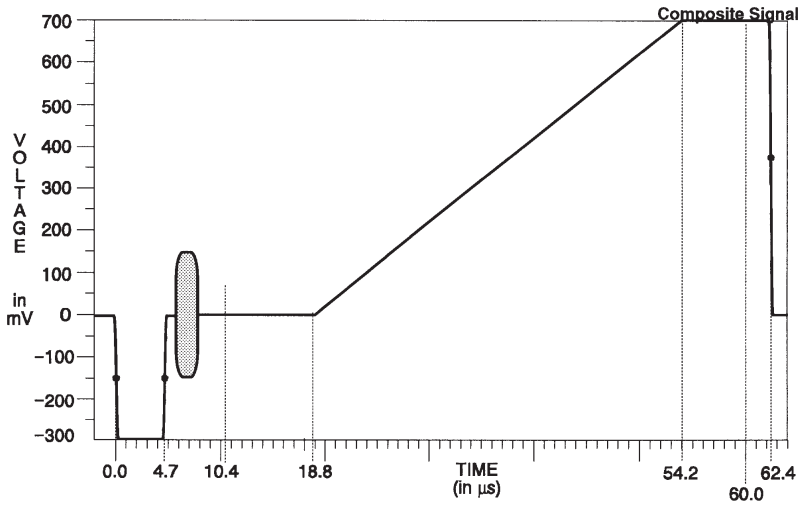
Test 16: 10 Modulate steps
Composite

17. RAMP

Characteristics	Definition of signal
Luminance Amplitude	700 mV greyscale



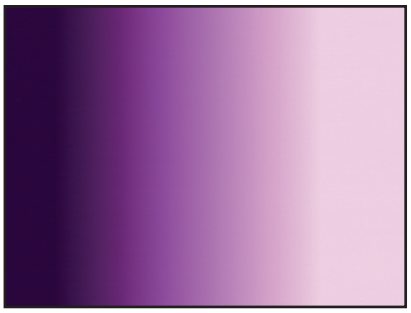
Test 17: Ramp



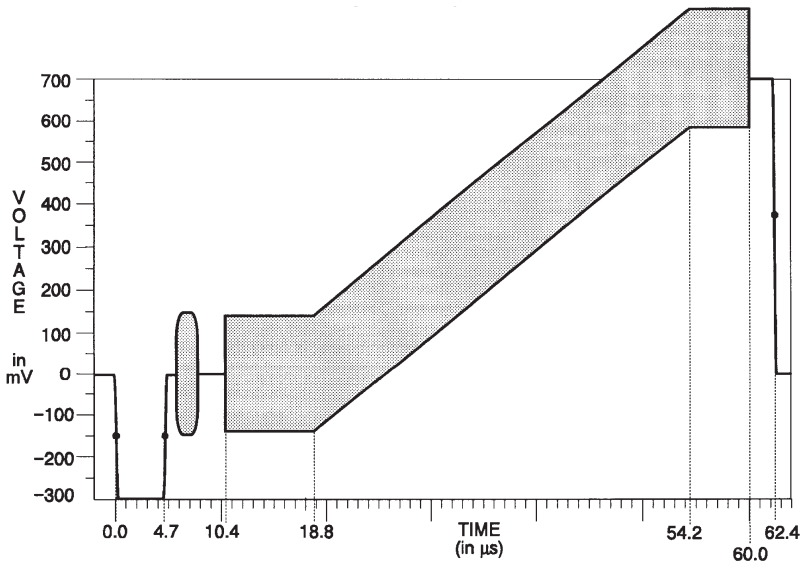
Test 17: Ramp
Composite

18. MODULATE RAMP

Characteristics	Definition of signal
Luminance Amplitude	700 mV
Chrominance Amplitude	280.0 mV p-p

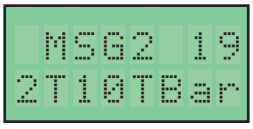


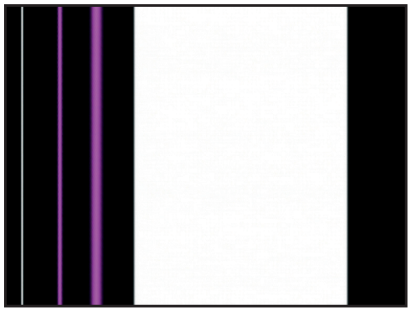
Test 18: Modulate ramp



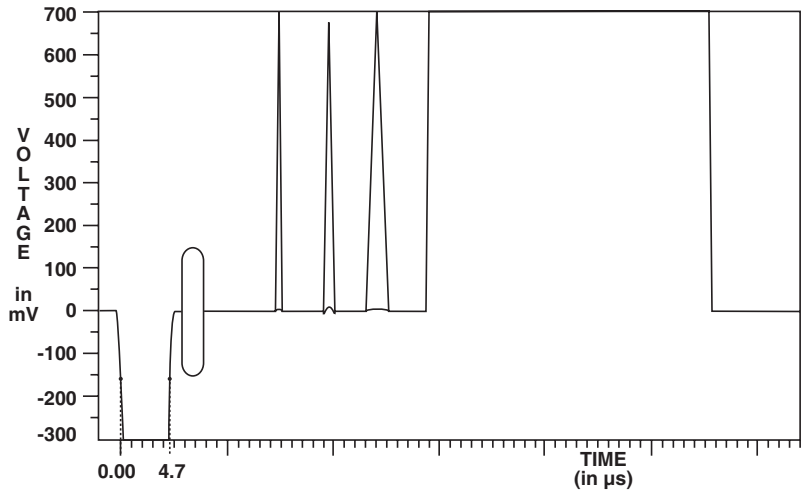
Test 18: Modulate ramp Composite

19. 2T 10T BAR





Test 19: 2T 10T Bar

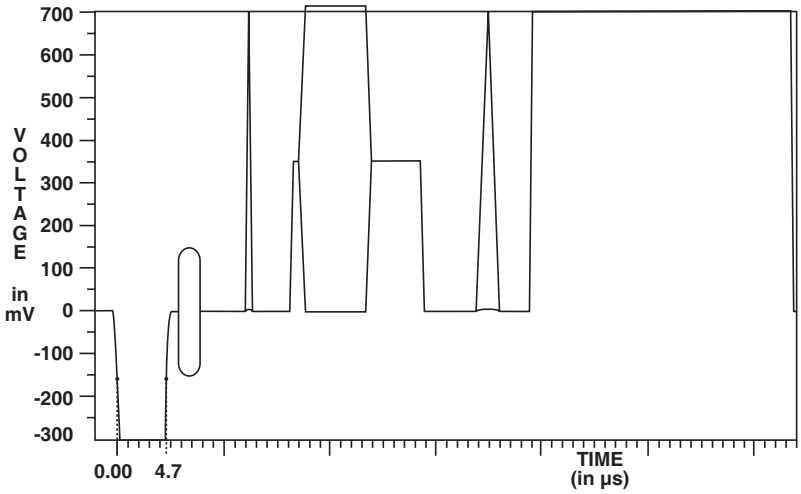


Test 19: 2T 10T Bar Composite

20. PULSE BAR

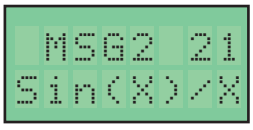
Characteristics	Definition of signal
Amplitude	700 mV

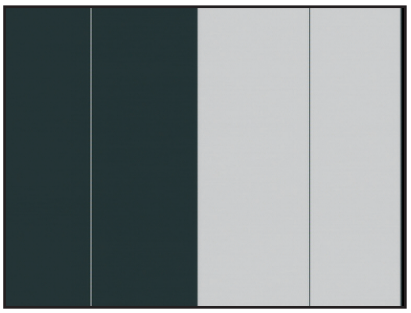
Test 20: Pulse Bar



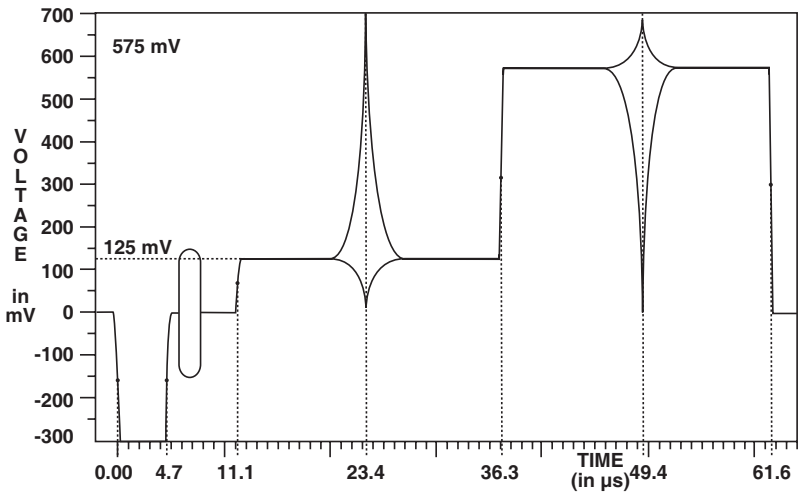
Test 20: Pulse Bar
Composite

21. SIN (X) / X



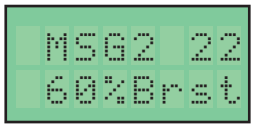


Test 21: Sin (x)/x

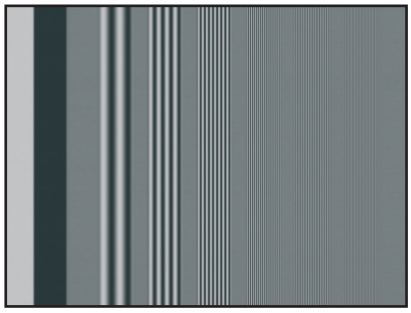


Test 21: Sin (x)/x
Composite

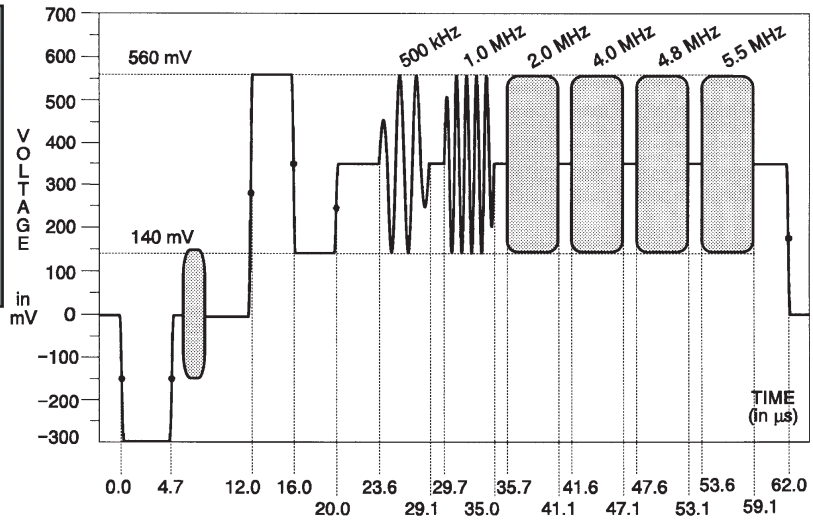
22. 60% MULTIBURST



Characteristics	Definition of signal
White Reference Bar Amplitude Pedestal Burst Frequencies	420 mV 350 mV 0.5 / 1.0 / 2.0 / 4.0 / 4.8 / 5.5 MHz



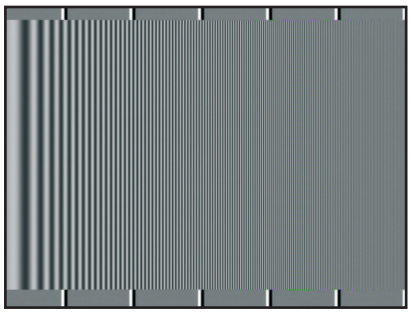
Test 22: 60% Multiburst



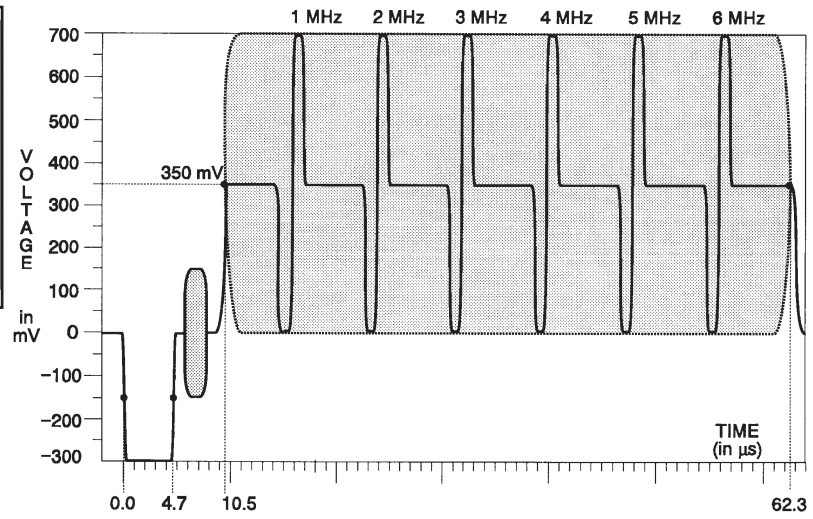
Test 22: 60% Multiburst
Composite

23. SWEEP

Characteristics	Definition of signal
Frequency Amplitude Markers	500 kHz to 6.5 MHz 700 mV p-p 1, 2, 3, 4, 5 and 6 MHz



Test 23: Sweep

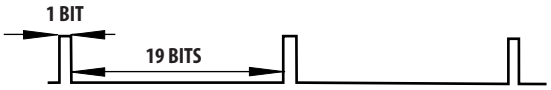


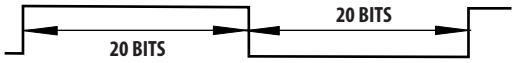
Test 23: Sweep
Composite

24. CHECK FIELD (PATHOLOGICAL)

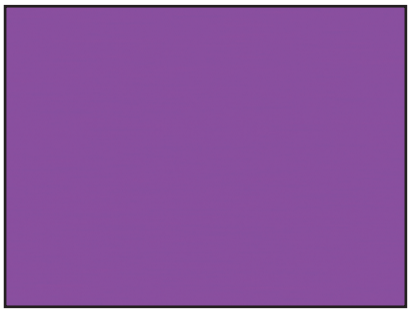
Characteristics	Definition of signal
A	
Y	198
B-Y	300
R-Y	300
B	
Y	110
B-Y	200
R-Y	200

Test 24: Check Field



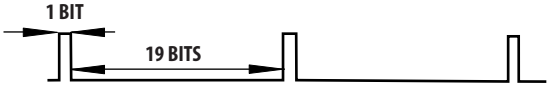


25. EQ



Test 25: Eq

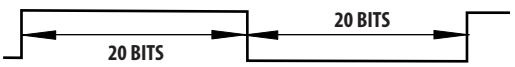
Characteristics	Definition of signal
Eq	
Y	198
B-Y	300
R-Y	300



26. PLL

Test 25: PLL

Characteristics	Definition of signal
PLL	
Y	110
B-Y	200
R-Y	200



NOTES